2023 National Teacher of the Year
FINALIST

Carolyn Kielma
Connecticut
School: Bristol Eastern High School
Subject: Science
Grade: 9-12
Since 2002, Carolyn Kielma has taught the love of science to students in Connecticut. For the last 15 years, she has taught biology, biotechnology and forensics, environmental science, anatomy and physiology and the Advancement Via Individual Determination (AVID) class at Bristol Eastern High School. Since earning her Bachelor of Science in biology from Susquehanna University and her Master of Science in secondary education from the University of New Haven, Kielma has found her greatest reward comes from the successes of her students – not just in science, but in life.

Kielma believes teaching is not only about curriculum, but also helping youth become better humans. Her goal is to provide an inclusive environment where all students feel valued, accepted and treated with equity. Kielma believes learning is not about knowing the right answer; it is a process of discovery. As AVID coordinator at her school, Kielma works to close the achievement gap by providing opportunities that prepare all students for college readiness and success in a global society. She provides professional development to inspire teachers across her district and travels nationwide to train teachers in engagement strategies that promote equity and inclusion.

Kielma recently received a fellowship grant via Fund for Teachers to study wolves, bears and elk at the Grizzly & Wolf Discovery Center and within Yellowstone National Park and share her experiences virtually with her urban students. She also coordinates STEMonday, a monthly science, technology, engineering and mathematics challenge which connects and builds relationships between elementary and high school students.

**Application Questions**

1. Describe a content lesson or unit that defines you as a teacher. How did you engage students of all backgrounds and abilities in the learning? Show how your deliberate instructional decisions create student learning and reveal your beliefs about teaching and learning.

I am excited whenever I get to bring science into a student’s life, and being trusted within my district to build the new Biotechnology & Forensics curriculum has been challenging and exciting. However, one of my favorite units is within the Biology course I have taught for over a decade. When our curriculum incorporate Next Generation Science Standards (NGSS) I helped build an ecology unit where students study the reintroduction of wolves to Yellowstone National Park. I was so invested in this unit that I applied for and subsequently won a Fund for Teachers (FFT) Fellowship in 2020 to visit the Greater Yellowstone Ecosystem to study the wolves, bears, elk, and other species and enrich my lessons.
Students are introduced to the idea that one species can profoundly affect an entire ecosystem. We use Yellowstone’s wolves as a model of that impact, yet in an urban school district, many of my students have never left their city or visited a national park, wildlife sanctuary, or another state. They have no idea what natural beauty their country holds. I knew I could not speak with the genuine, raw emotion of Yellowstone’s wonders until I could travel there myself.

The fellowship allowed my students to see the wonders of the National Park System (U.S. National Park Service) through the summer experiences of their teacher as they followed my trip on social media.

Current and future students are now able to review images, videos, and data I obtained from Yellowstone National Park and The Grizzly and Wolf Discovery Center in Montana to create models and understand how the stability of an ecosystem depends on a variety of factors.

Here’s the beauty of this unit and why I feel it is so important, not only to my curriculum but to the lives of my students. Since we are able to discuss the wolves of Yellowstone, and how these creatures were ostracized, hunted, and feared simply due to their nature, it opens the door to conversations about misrepresentations and stereotypes in my class; giving voice to students and their own feelings. The history of the wolves of Yellowstone includes their eradication from the area. They were driven out of the area or destroyed in the 1920’s because they were depicted as a menace or nuisance. Soon after, the entire ecosystem drastically declined. In short, the rivers turned brown while elk overgrazed and destroyed shrubs, grasses, and trees. The landscape was barren and the other organisms emigrated to find food and resources elsewhere. By highlighting the impact of the eradication of wolves on the entire ecosystem, students can reflect on how other ecosystems are negatively impacted. I am able to discuss the topics of misrepresentation and stereotypes within biology and parallel these topics without students feeling unsafe or singled out.

It took a long time and an act of Congress for scientists to convince locals of their controversial plan to reintroduce wolves. Since then, however, the ecosystem has recovered in innumerable ways. Students create a model of Yellowstone food webs and chains within to understand the complex natural processes involved. Students learn how the entire ecosystem benefited once the wolves were finally understood, accepted, and respected. As a class, we are then able to discuss the value of inclusion and diversity not only within Yellowstone but within their school and local community as well.

Additional resources provided by the Nature Conservancy and PBS Learning Media allow students to analyze historical data to help them mathematically represent predator-prey relationships, carrying capacity, and limiting factors within an ecosystem. Students also use species-specific data to understand ecosystem dynamics and refine
solutions for reducing the impacts of human activities on environments and biodiversity. We also relate the Greater Yellowstone Ecosystem to our local conservation efforts. Students truly realize how all living things impact others and can see the benefit of the efforts of our local habitats.

As my students witness my excitement as I share my images, research, and experiences with them, they feel empowered. I then encourage them to take part in actively making a difference in their community. Though I use wolves to convey it, this is just another way I teach students that people of all ethnicities, identities, orientations, physical abilities, languages, and/or immigration statuses have value, and should be accepted and treated with respect, humanity, and understanding. I also hope they learn that while they may feel their contributions may seem insignificant, they have the ability to create a better future for themselves and others.

2. Describe a project or initiative you have been involved in that deliberately creates culture in your classroom or school. Describe how you build and use relationships to collaborate and to teach students of all backgrounds, abilities and identities. What is the status of the project today?

Several years ago, I wondered "am I really doing what MATTERS for ALL students?". That introspective look sparked a desire to do more than teach science to a select few. In 2009, I attended AVID training in Chicago. AVID's mission is to close the achievement gap by preparing all students for college readiness and success in a global society. Looking back, I feel this was my first true exposure to the power of equity. I had always felt I was a "good teacher" but it was there I realized I was not providing what all students need in order to be successful. I realized that I had to become more. I needed to become masterful in these practices. I thought being an AVID elective teacher and growing that program within my district was the best way to start.

I began with one AVID cohort of students that I followed from 9th to 12th grade. Our goal was to make each student college ready. I provided academic and organizational skill training. We visited at least 2 colleges/universities a year. We gave back to the community by organizing clothing drives, fundraising for local charities, helping at retirement homes, and volunteering at soup kitchens. We had guest speakers with similar backgrounds to our students share perspectives and stories of perseverance while stressing the benefits of community connections. As a class, we became a family. They started out as skittish freshmen with low self-esteem and self-worth. They thought college was the stuff of movies. With high expectations and the ability to create more authentic connections, my students began to believe success was possible. Every AVID student in that cohort graduated on time (many with college credits) and I watched them attend prestigious colleges across the country. I have been in touch with most of them ever since. They hold advanced degrees and are pediatric nurses, social workers,
managers of their own local businesses, and work for Connecticut legislators. Some still volunteer locally and serve as AVID tutors at our school.

The methodologies I adapted and implemented challenged my belief systems and helped me create lessons and practices that allowed me to empower them and advocate for school and district-wide change. As I knew this culture needed to become a school-wide initiative, I became the AVID coordinator. In that time, not only have I taught three AVID cohorts out of the eleven total cohorts who have graduated, but I have been able to provide numerous professional development opportunities for colleagues and staff in my district to help them learn and use these strategies to empower all students in all classes. By knowing AVID students, I am better able to understand our community as a whole. They are not the students one would regularly see in advanced classes and I strive to be a catalyst to change that. AVID students at our school have proven how students can perform when given all the right opportunities. The latest data (class of ‘19) shows that over 80 percent of our AVID students were nonwhite, free/reduced lunch students whose parents did not graduate from a college/university. Roughly 30% were English Language Learners. Of that group, 100% graduated on time, submitted FAFSA, and completed 4-year college entrance requirements with an average 3.13 GPA. Among them, 50% took college courses/dual enrollment and 83% took AP/IB or college-level courses prior to graduation. By the fall of that year, 92% were enrolled in a college or university (the others attended tech schools or enlisted with the military). 100% of those students completed the FAFSA and applied for at least one scholarship for higher education. While I feel AVID has rekindled the love of education in me and has given me the opportunity to become more than a science teacher, I feel it has taught me so much more about who my city’s scholars really are and how I can help support them in becoming their best versions of themselves. I continue to fight to help them realize their potential and worth.

The college-bound atmosphere and impact of the AVID program have recently spread to the middle and elementary grade levels in my district. I continue to provide district professional development in engagement strategies to share my classroom experiences and promote equity and inclusion. In 2021 I was hired as an AVID Staff Developer to train teachers nationwide in an effort to reach more colleagues and I am honored to teach practices and methodologies to inspire educators across the country.
3. Describe specific ways in which you deliberately connect your students with the community. Show how these community connections dissolve classroom walls and are used to impact student learning and success.

In 2018 my students and I founded the “STEM & Forensics Club” at our school to provide enrichment activities to my high school-aged scholars and other students across the district. In addition to discussing current, past, and local forensics cases and the research or evidence involved during regular club meetings, our 9th-12th graders visit the entire 5th-grade class at the local elementary school to build relationships and design and complete monthly STEM challenges. The club's mission is to highlight and start an early love for science, technology, engineering, and mathematics in the hopes of inspiring students to pursue those careers within our community. Our culminating activity is an “egg drop” in June, where our high school team guides the engineering of devices by the 5th graders that will allow a raw egg to survive a drop from a ladder truck. The club leaders are required to demonstrate leadership and communication skills as they visit and speak with our local fire department to coordinate the competition. This is now an annual event, often covered by the local press. It is encouraging to see those past fifth graders as current, successful high school science students. I love telling them how former club members are now pursuing advanced degrees in STEM fields.

Besides these “STEMonday” events, I work to be a role model for my students in the community. Over the years, my aforementioned AVID students have participated in several community service projects that I have helped facilitate, including visiting a local retirement home to sing carols and help residents wrap Christmas presents for families and friends, collecting clothing and items to donate to St. Vincent DePaul Mission, participating in Relay for Life, and volunteering at the BBGC (Bristol Boys and Girls Club). Students truly understand the importance of giving back to their community at these events as they learn how important it is to build relationships and be kind to those in need.

In addition to AVID, I represented my district at ESPN’s STEAMfest, a Science, Technology, Engineering, Art, and Math Event hosted by the aforementioned BBGC, to conduct chemistry demonstrations and explain basic crime scene forensics to inspire children to consider these fields when deciding on a career. I feel that if STEM fields can be viewed as exciting and attainable, instead of scary and difficult, we can begin to build a community that sees value in those careers and put our nation at the forefront of these industries.

I feel passionate about connecting students to the community by inviting guest speakers to our school. I coordinated visits and small group discussions with local financial advisors, pediatric nurses, real estate professionals, and other careers, most of whom are former students, to discuss career opportunities with our students. We partnered
with ESPN, an American international sports channel in our city, to invite retired professional basketball players, college basketball analysts, and financial advisors to share their experiences and teach our students to persevere in the face of adversity. Students are able to relate to these professionals who come from similar backgrounds and have life experiences that mirror theirs. They begin to see possibilities and potential in their own futures. I have also had presentations by an orthotics & prosthetics service laboratory for my biotechnology students. I coordinated a visit by a former AVID student and cancer survivor who demonstrated the use and care of his prosthetic leg (and running blade) for my students. These presentations allow my students to envision a career in biotechnology or a field of medicine that can positively impact those they know and love.

I am also very excited about my most recent student-run initiative, “The Pink Project”. Three students approached me at the beginning of the year, concerned with new security measures for our lavatories. As policies now include no backpacks in the bathrooms, they worried about the inability of our female students to feel comfortable in regard to feminine hygiene. They asked that I advise the club in the hopes that they could supply bathrooms with products and work to hang affirmations, body positivity, and kindness posters to make the areas feel welcoming and safe. As we work toward our goal, we have also decided to start drives and fundraisers to provide clothing, products, and even monetary donations for local women’s shelters and organizations that aid those emerging from homelessness and other crisis situations. I am excited for the opportunity to work with these students and continue this club for years to come.

4. Describe a time when you grew as a teacher leader and life-long learner as a result of being an advocate in your school, state or beyond. Describe your advocacy, how it helped you grow and how it impacted students.

As a veteran teacher and life-long learner, I have been working on evolving my practice to provide equity for all students so that everyone has the opportunity to succeed in my classes. In pre-pandemic years, I focused far too much on understanding why students seemed too passive in their own learning. I spent time learning and studying the tendency for districts to lower expectations of students, based on their academic backgrounds or standardized test scores. However, all of that changed for me as our country dealt with the changes brought about during the pandemic. I realized I needed to change how I view the issues in education and work to analyze my own racial consciousness.

Those issues were put aside for me when public education had to deal with providing digital equity to each student to meet distance learning needs. In March 2020 when my school went remote I did not worry, as I had already made vital relationships and connections with those students. I knew they would do the work because I had built solid relationships with strong foundations.
However, at the beginning of the 2020-21 school year, I struggled to make connections despite the fact each scholar had a device. They did not turn their cameras on. They did not participate in online learning. Making connections was extremely difficult. After my initial frustration and confusion as to why they didn’t “come to school”, I delved deeper to learn that my students were underserved. Having a device was not enough. Many did not have stable homes or food security. They did not have access to the internet. There were so many factors obstructing their learning that I simply did not fully realize. I lost so much vital learning time with them as they struggled to get online or get access. It was not that they didn’t want to learn, but they lacked the same opportunities as others.

The rise in frustration, exhaustion, and absenteeism soared schoolwide, especially in those underserved populations which led to a definite shift in my view of equity. I researched further to digest the difference between learning culture and equity culture in order to be an informed advocate for these students. I read Kendi, Diangelo, Tatum, and several others to understand how public education has been doing well at the former, but poor at the latter. I witnessed first-hand how different environments lead to different kinds of achievement (Kendi 2019). We cannot teach effectively and expect students to learn when we do not understand how their backgrounds and identities influence their learning, essentially if some students do not get the support they need to succeed (DeWitt 2020). Previously, I always simplified that as “I cannot teach them if I cannot REACH them”. I feel this needs to be at the forefront of policy and educational reform. I feel education needs to focus more on standardizing the opportunities available to all of our students. The 1:1 device model and providing food security are excellent starting points, but this is just the tip of the messy and difficult process that is the reformation iceberg.

I continued my research by reading “Ruthless Equity” by Ken Williams. I realized it was time for me to be ruthless within my school, district, and beyond if reform would ever truly take place. Providing professional learning across my district was not enough, so I facilitated courses entitled "Digital Teaching and Learning" and “Engaging Rigorous Classrooms” with this equity lens as an AVID National Staff Developer and taught fellow educators across the nation. I collaborated with elementary, middle, and high school educators from states like California, Missouri, Oregon, Arizona, Illinois, Washington, New York, Florida, North Carolina, and Minnesota. This interdisciplinary collaboration allowed me to put individual equity work, research, and AVID training into practice to help teachers strengthen, differentiate, and diversify the way they present lessons to students. I work to encourage teachers to consider the voices that are represented in their lessons and help create measurements of intelligence that really reflect all of our scholars. I call on teachers to edit, evolve, enrich, and elevate their lessons to provide equity and opportunity for all students.
I do not have all the answers, but I am passionate about taking what I learn from these initiatives and incorporating new insights into my district lessons. I know that this work is never truly finished, but I am dedicated to continuing this work for my students.

5. As the 2023 National Teacher of the Year, serving as the ambassador of education for the United States, you have been asked to give a speech to a large audience of teachers. This speech is being recorded and will be shared broadly with a larger audience. What is your message? What is the talk you give? [You may indicate a specific audience. For example, a “back to school” talk.]

We, as educators, are masters of adaptation and evolution. The past few years forced us to step outside our comfort zones, whether in planning electronic or virtual lessons, understanding trauma-informed care and practice, or planning a multi-tiered system of support to get our scholars back on track in their learning. More than ever, we need collaboration among our peers in our professional learning community. We need to recognize and promote cultures of equity as we evolve. This is not a quick and easy fix but will take intentionality and focus. We will only move forward by leaning on and supporting each other in this educational evolution.

I encourage teachers to observe their colleagues and counterparts, not only within, but across disciplines and grade levels, as we courageously do this work. We have greatness amongst us and we absolutely need to harness it. Each amazing teacher I’ve had the privilege to collaborate with has given me another tool to help me evolve and perfect my craft. Whether it was a way to differentiate, a new online application, a classroom management tip, an intriguing text, or even a failed lesson, it is my fellow educators who have taught me the most. We are a group of highly educated, motivated, and courageous professionals who understand the power of lifelong learning. Trust in yourself and your district!

We also must remember that while this profession is rewarding and extremely important to help develop productive citizens, it is also extremely exhausting and difficult. As educators, we must remember that we are best effective when we are able to take care of our own mental health and well-being. Most of the teachers I know, myself included, are “natural helpers” who sometimes forget to ask for help for themselves. So I feel it is imperative that our administrators promote and initiate self-care measures. As colleagues, we must remember to check on each other, practice building each other up, and straighten each other’s crowns. Only together can we become better.

When I think back to when I was a student, I cannot recall which teacher first taught me science, but I do remember how my most effective teachers made me feel. I worked hard to make them proud because I knew they cared about me. I felt that I belonged in their room and that what I did mattered. They helped me understand that learning is not
about knowing the right answer. It is a process of discovery. Teaching is not only about the content but about helping youth become better humans. I strive to be the type of teacher that I needed - a trusted adult that students can come to when they need help, whether inside or outside the classroom. I work to create an emotional connection with each student. Students may not remember each unit you taught, but they will remember how you sparked curiosity, challenged them, fostered discovery, and helped them be self-motivated learners. They will remember how they felt a sense of belonging that made them feel valued, accepted, and treated with respect. If you believe that they can accomplish something difficult if they have determination, ambition, and drive, they will believe it too.

To strengthen and improve this profession we also need to focus on representing the students who are in front of us. We must strengthen, differentiate, and diversify the way we present lessons to reach all students. Teachers must consider the voices that are represented in their lessons and help create measurements of intelligence that reflect all of our scholars. Ibram Kendi asks “What if we realized the best way to ensure an effective educational system is not by standardizing our curricula and tests but by standardizing the opportunities available to all students (Kendi 2019)?”

However, I feel the absolute best way to represent students in the classroom is to inspire our students of all backgrounds to become educators. This profession needs to look more like the students in the room. The best form of representation is not on a poster or slide show, it is in the front of the room as a highly educated role model for others to see and learn from. We need teachers of all races, religious groups, cultures, gender identities, physical abilities, and other marginalized groups in our schools. I feel passionate that we need to show students the value of becoming an educator and show them how they can make a difference in others' lives by teaching!