\$6.99 • ISSUE 149 • JAN/FEB 2022

EDUCATION FOR TODAY AND TOMORROW

MORBID FASCINATION IN THE CLASSROOM: ENGAGING OR INAPPROPRIATE?

EDITORIAL SPONSORSHIP



Q and A with author Laurie Friedman Featuring Crabtree's Blossoms Beginning Readers Book Collection

Crabtree Publishing, provider of educational books for grades PreK-9+, has teamed up with author Laurie Friedman to bring educators an inside look into the Blossoms Beginning Readers collection. Laurie Friedman is the award-winning author of more than seventy-five critically acclaimed picture books, chapter books, and novels for young readers, including the Mallory McDonald series and the Love, Ruby Valentine series. Intended for Early Emergent to Fluent Readers in grades PreK-3, books in the Blossoms Beginning Readers collection entertain and engage young children as they build their reading skills. Learn more as we chat with Laurie Friedman about her latest book collection.

Crabtree Publishing: What inspired you to write the stories in the Blossoms Beginning Readers collection? (Trainer Tom, Silly Milly Adventures, Spots and Stripes, and Moose the Dog series.)

Laurie Friedman: I have a love only relationship with beginning readers! As an author, I think nothing is more exciting than getting young readers hooked on reading. My goal for the Blossoms Beginning Readers collection was to create multiple series of books to delight and inspire young readers everywhere. These books include animal stories, family stories, and lots of humor. Hopefully there's something here for everyone.

CP: There are a number of series at different reading levels in the Blossoms Beginning Readers imprint with more being released in spring 2022. Tell us a bit about these books and why this book collection is so important for young readers.

LF: Again, the goal in creating these books was to offer a variety of series so that there would be something to appeal to everyone. By that, I mean kids at different reading levels and with differing interests. The key here was to leave no genre untouched. The 2022 line builds on the original list of titles and includes mysteries, horror, realistic fiction, sports fiction, animal fiction, humor and so much more.

CP: Do your stories have a particular message you want young readers to connect with? What do you hope young readers will take away from these entertaining stories?

LF: My goal is for emerging readers to fall in love with reading. I'm not really trying to impart a message. I feel like my job as an author is to make reading fun. I want kids to like the books so much that they'd rather read than watch TV or go on their devices. For me, the key is to get readers to laugh, sometimes to cry, and always, to fall in love with the characters. I want them to want to keep turning pages to find out what happens next!

CP: How do the series in the Blossoms Beginning Readers collection differ from other series you've done in the past?

LF: For beginning readers, it is critical to find just the right balance of action, description, character development, humor, and of course, illustrations. The

books in the Blossoms Beginning Readers series are designed and written to be shorter and to get right to the point. Beginning readers must be hooked on the first page. To keep young readers engaged and turning pages, every word needs to move the story forward.

CP: In what ways do you think your stories impact or influence young readers? Why do you think this is important?

LF: I love this question. I feel honored to do what I do. For me, writing for kids is truly a privilege. As a child, I loved to read and to write. My most sincere hope is that I create books for children that inspire a new generation of readers and writers.

CP: Why do you think fiction stories are essential to beginning reading?

LF: Because they are fun to read! Nothing is too serious or required. These books are meant to entertain. They're a getaway . . . and who doesn't want that?

CP: Can you tell us about how schools and libraries are using these wonderful stories?

LF: Another great question. One of the things I love most about the Blossoms Beginning Readers collection is that all of the series include six or more titles. I believe this is an invaluable resource for schools as it makes selecting books easier. If a child likes one book in a series, there are many more to be read.

CP: Tell us about the resources in the books you have written. Why are these important?

LF: All of the books include a discussion guide. These are a terrific resource for parents, teachers, and media specialists to use as conversation starters with young readers. Research shows that kids read more when they talk about what they're reading.

CP: What new book adventures can readers expect this spring?

LF: Oh... there is so much excitement coming to bookshelves this spring! Some of my favourite titles include the Detective Daisy series about a young sleuth who solves classroom mysteries. I also love the Camp Creepy Lake books. Beginning readers will be flipping pages in this horror series to find out what happens at the scariest summer camp ever! And last but not least, I can't wait for readers to discover the Magic Postcards books. In this fantasy series, a young brother and sister make friends, see new places, and learn cultural traditions from countries around the world.

That's just a small taste of what's to come. I hope readers everywhere enjoy all of the books!

Crabtree Publishing is a trusted source for nonfiction and fiction books for grades PreK-9+.

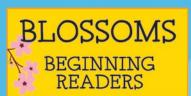




www.crabtreebooks.com/en-ca T: 1.800.387.7650 • F: 1.800.355.7166



FOUR NEW BLOSSOMS SERIES



NEW Levelled Fiction series!

Books in the Blossoms Beginning Readers collection are intended for Early Emergent to Fluent Readers. Levelled fiction reading content features colourful illustrations and entertaining stories to engage young readers!

Level 1 24 pages, 6 x 8", full colour \$16.95 RLB \$6.99 PAP School Prices

Level 2 24 pages, 6 x 8", full colour \$17.50 RLB \$7.50 PAP School Prices

Level 3 24 pages, 6 x 8", full colour \$17.95 RLB \$7.99 PAP School Prices

Level 4 32 pages, 6 x 8", full colour \$17.95 RLB \$7.99 PAP School Prices



Phoenix and Goose series (Level 1) Reading Level: Gr. K • Interest Level: Gr. PreK-3



Detective Daisy series (Level 2) Reading Level: Gr. 1 • Interest Level: Gr. PreK-3



Chef Kate's Kitchen series (Level 3) Reading Level: Gr. 2 • Interest Level: Gr. PreK-3

"But some days, you have to be a little brave too!"

ine the n

ebooks

Available

Goose knows there will always be new things to try and great friend

was great!

ach is great.

I have a mystery to solve.

te thinks James and the

LMES and the MANT PEACE

nes and the Giant Peach," says I ask Rachel some question "I thought so too," I tell Rachel. me of your book? But right now I do not want to talk about books. Even great ones.

who will





Tel: 1-800-387-7650 Fax: 1-800-355-7166 orders@crabtreebooks.com



Magic Postcards series (Level 4) Reading Level: Gr. 3 Interest Level: Gr. PreK-3





www.crabtreebooks.com

616 WELLAND AVENUE, ST. CATHARINES, ONTARIO, CANADA, L2M 5V6, TEL: (800) 387-7650

PUBLISHING COMPANY

NOTES

et again we find ourselves in a situation where COVID-19 has taken the world by surprise. It has been a long, strenuous journey and

everyone is weary. That is a given. It is tough on teachers, tough on students, tough on families, and we are still uncovering just how much the mental health and wellbeing of both adults and children have been impacted. This process of discovery will likely be unfolding for years to come.

Some enterprising teachers, however, have come up with solutions that positively affect the mood and tone of their classrooms. One such teacher is Britt Jungck, who has focused her teaching practice on inclusivity, ensuring that no student gets left behind. Jungck's journey evolved during her K-12 teaching years where she developed an affirming curriculum that soon led her to complete a PhD. Now she instructs future teachers on how to directly address the full range of student identities in a school's environment. The result has been increased engagement and interest on the part of the students once they see themselves welcomed in class.

Feature writer Martha Beach tackles the world of STEM and, in particular, how and why there are fewer girls in those fields. She addresses the importance of representation and how crucial it is that students of all

genders and cultures be able to see themselves as scientists, mathematicians, engineers, etc. The article outlines strategies for helping educators introduce and explore STEM-related topics in the classroom, while also providing tips on how to gain confidence in their own abilities to teach those topics. Who knew that morbid fascination might be employed as a motivating force to engage students? Subjects such as true crime or horror explore people,

> places, and events that trigger this interest. The balancing act is to engage students sensitively, while still humanizing those who are subject to suffering and cruelty. In this way, students learn to become empathetic and even, identify in part with the victims, to understand some of their experiences. In this latest Classroom Perspectives piece, educator Kaila Ward discusses how morbid fascination can be a jumping-off point, but she also emphasizes that learning may be lost without the context of social commentary.

> As a fresh start to the new year, we are pleased to introduce a brand new column: Bookstuff, where books take centre stage. This issue's column explores Black History Month with a selection of important titles that celebrate Black history, culture, and experiences.

> Our Field Trips column takes you on a journey through children's museums, where wonder and play offer a wide range of stimulating, rewarding experiences for young students.

> Last but not least, CURRICULA explores the very important and relevant topic of Cyber Security and Privacy, something

every citizen needs to understand, especially students who are spending much of their time in an increasingly digital world.

Until next time.



CONTENTS

FEATURES

10 Everyone is Welcome: Establishing Inclusive Classrooms Britt Jungck

24 The Future of STEM: Changing Perceptions Martha Beach

COLUMNS

Classroom Perspectives: Morbid Fascination in the Classroom: Engaging or Inappropriate? Kaila Ward

16 Field Trips: Children's Museums

 $f 22 ig|_{\mathsf{Bla}}^{\mathsf{Bool}}$

Bookstuff: Black History Month

CURRICULA

18 Global Issues: Cyber Security and Privacy Carlo Fusco

AD INDEX 27



TEACHMEDIA

PUBLISHER AND EDITOR Wili Liberman

MANAGING EDITOR Lisa Tran

ASSOCIATE EDITOR Raenu Sarathy

ASSISTANT EDITOR Kelsey McCallum

CONTRIBUTORS Martha Beach Carlo Fusco Britt Jungck Kaila Ward

ART DIRECTOR Pauline Lopez

EDITORIAL ADVISORY BOARD Bernice Slotnick *Teacher (Retired)*

John Myers Curriculum Instructor, OISE (Retired)

Rose Dotten CEO and Head Librarian, Shelburne Public Library

TEACH is published by 1454119 Ontario Ltd. Printed in Canada. All rights reserved. Our contact info is: 1655 Dupont St., Suite 321, Toronto, ON, M6P 3T1 E: info@teachmag.com T: (416) 537-2103. For subscription info, visit shop.teachmag.com. Unsolicited articles, photographs and artwork submitted are welcome but TEACH cannot accept responsibility for their return. Contents of this publication may be reproduced for teachers' use in individual classrooms without permission. Others may not reproduce contents in any way unless given express consent by TEACH. Although every precaution is taken to ensure accuracy, TEACH, or any of its affiliates, cannot assume responsibility for the content, errors or opinions expressed in the articles or advertisements and hereby disclaim any liability to any party for any damages whatsoever. Canadian publication mail sales product agreement No. 43579512. ISSN No. 1198-7707.

Morbid Fascination in the Classroom: Engaging or Inappropriate?

By Kaila Ward

Serial killer documentaries, true crime podcasts, and dark tourism are just the tip of the iceberg when it comes to the recent proliferation of the morbid entertainment industry. While interest in the morbid has arguably always been around, the technological era has made this interest more accessible than ever. Real life horror is right there at our fingertips and many of those phones live in the hands of our students. Of course, the new generation is not the culprit here. There are records dating back to the Jack the Ripper killings in 1888 that document locals touring the murder sites to feed their own interest. That same enthrallment can be seen among tourists today in Milwaukee, WI, as they stroll on a Jeffrey Dahmer tour. So, while our students' morbid fascination is not unusual, their access to it is desensitizing.

Beyond true crime, I have found that my students are generally morbidly curious. When a character dies in the novel we are reading, engagement increases. When we discuss dark history, like the Holocaust or the Salem Witch Trials, hands raise. Students often display a morbid curiosity that I feel I cannot ignore, but can I lean into it? As teachers, we strive for engagement and are taught to play into student interest, but I have to wonder if it's wrong in this case. Should I use someone else's misfortunes or trauma as a tool to increase student participation? Is using morbid fascination in the classroom engaging or inappropriate?

In my opinion, there can be a place for it; it should be treated, however, as a jumping-off point for more meaningful conversations about the human experience. Morbid fascination without social commentary leads only to desensitization, with students starting to see death and tragedy as foreign and separate from their own experience. In reality, by studying dark history and moral tragedy, students should be able to explore the connectedness of emotions such as loss and trauma. So, how do teachers utilize our students' morbid fascination in a way that engages them, but also humanizes them?

A teacher should never discount the power of hooking students into a lesson, and morbid fascination can be an incredibly beneficial hook. For example, when teaching the Salem Witch Trials, students are drawn by the idea of black magic and witches being burned at the stake. Teachers can use that interest to engage students in the content. However, it's necessary to then expose the disassociation students make to distance themselves from historical or literary violence. The thought of being burned alive should make students shudder, not get them excited. We want students to move from being morbidly curious to feeling empathy for the innocent victims.

One technique that I have found to be beneficial for bridging the gap between disassociation and empathy is using imaginative rehearsal. Putting students in the shoes of a literary character or a historical figure can eliminate the distance that morbid fascination often creates. But it is important to create boundaries for imaginative rehearsal in order to avoid commercializing trauma. For example, students shouldn't be asked to stand in cramped quarters to mimic the experience of being in a box car during the Holocaust. Likewise, students should not be asked to reenact slave auctions to understand the experience of buying and selling humans (yes, this really happens). The activities in both scenarios do not ask students to authentically engage from an emotional perspective. Any opportunity to build empathy is lost as students are provided an impersonal experience of an extremely traumatic event.

Students need to emotionally engage with the content. Having them write from the perspective of the sibling of an accused witch during the Salem Witch Trials, for example, can be a meaningful use of imaginative rehearsal. This activity doesn't ask students to imagine an unimaginable experience and then simply leave. Students must negotiate the turbulent emotions of loss, confusion, and trauma in order to complete the assignment. Not only are these emotions relatable, but what was simply a morbid fascination with witches has now become an authentic human connection spanning over 300 years.

Similarly, in a social studies class, students will learn about World War II and the Holocaust. As teachers, we often approach "heavy" lessons with hesitation. Can our students handle it? Will they be mature and respectful when we cover serious and traumatic topics? When students distance themselves emotionally, humor often becomes their coping mechanism and for teachers this can be a classroom nightmare when discussing heavy topics.

Having students read an emotionally-relatable primary text, such as a collection of letters written by young people



during the Holocaust, forces them to look in the mirror and see themselves in individuals living decades before they were even born. When students put themselves in the shoes of a Holocaust victim, they must personally engage with the content. For teachers this means the worry of "Will my students be mature enough?" is greatly reduced and class runs smoother for everyone. Students are able to learn about the topics they are morbidly fascinated by and teachers don't have to worry about behavior issues going awry.

Using morbid fascination in the classroom is not only a great hook to get students to start making meaningful and authentic emotional connections, it also provides an opportunity for teachers to dispel popular misconceptions. For instance, one of today's most famous dark tourist destinations is Alcatraz. Over one million people flock there each year to hear about the grotesque deaths in the prison and to perhaps catch a glimpse of the ghost of a former inmate. Once you're on the tour, however, you learn about the natural history of the island and even discuss the Indigenous Occupation of Alcatraz. Those who were once only morbidly fascinated with Alcatraz leave the tour with a legitimate knowledge of the subject beyond just death and hauntings.

Teachers can accomplish the same in the classroom. Many students come ready to read about witches burning at the stake when we start *The Crucible*. Their initial morbid interest can then be used to dispel myths, like the fact that no witches were actually burned at the stake in Salem. This initial myth may have ignited students' curiosity, but it then becomes an entry into more meaningful conversations regarding reality, innocence, and truth.

Teachers must realize that if our students are interested in something, they are going to learn about it. Unfortunately, students often seek the knowledge of YouTubers or those less qualified to quell their curiosity. Teachers are experts and students should trust our expertise. Therefore, teachers should feel confident in engaging students' morbid fascination, because we know that relevant content is essential in the classroom and we are just the experts to teach it.

Overall, morbid fascination can be a great teaching tool when used to initially get students interested in a topic, but must eventually lead to more meaningful conversations about the human experience in order to restore humanity to the morbid.

KAILA WARD is an 11th and 12th grade ELA teacher at Greeley Central High School. Through her work with diverse student populations, she is an advocate for equity in the classroom and diversity in school curriculum. A resource by TEACHMEDIA

<A DIFFERENT way TO LEARN CODING/>

TRY IT FREE TODAY!



CONCEPT OF 1.COM

Everyone is Welcome: Establishing Inclusive Classrooms

By Britt Jungck

he children need us. We are entering a very critical period in the field of education, and the responsibility to "show up" for our students has never been greater. Last year, as I witnessed the toll this pandemic was taking on my own kids, I realized that not only were my students hurting, but young people *everywhere* were struggling. It seemed like the perfect time for a change.

Teaching has been a part of my identity since 2003. I've taught in all kinds of different environments: a tiny village of 750, an urban district with systemic poverty issues, a middle-class town with little diversity—even community and private colleges.

In 2020 I started working for a new school district, right in the middle of the pandemic. As classes moved online and curriculum and basic routines became the sole focus, I noticed a light was shone on the inherent biases present in many schools. Within my own classroom, I was suddenly hyper-aware of how the lack of representative curriculum, combined with feelings of isolation brought on by the pandemic, was harming students. This became a revelatory moment for me, and I decided to make some changes.

In my new role as a high school literature and composition teacher, I had the opportunity to change up my units and examine the effect on students. The first thing I did was remove a research paper on technology



and replace it with one on famous activists. Purposely, I crafted a list that included Latinx representation, nonbinary leaders from the LGBTQ+ community, iconic Black Americans from the civil rights movement, Indigenous activists, etc.

These were new topics for a school that boasted a non-white enrollment of less than 13 percent and had a flailing Gay-Straight Alliance with less than ten members. However, when nearly 20 of my 94 students chose Marsha P. Johnson, I knew they were craving more diversity in their lives.

Two weeks later, during parent-teacher conferences, one mother thanked me because her child was excited about school for the first time in two years. She said I was their favorite teacher. I'd not yet had much one-on-one time with this student, so I actually found myself feeling embarrassed. But months later, the student confessed that my assignment had let them know they could be themselves in my room; it was the first time they hadn't skipped English class in years.

After that, I continued to evolve my methods. Although some parents were not thrilled to have their kids learning about authors and historians who were from marginalized populations, many students would linger after school and whisper confessions like, "It is so hard to be Asian in this town," or "I know some of my friends'



parents say I'm not welcome in their home." It was my job to make sure those students knew they *were* welcome in my classroom.

Soon I began wondering how the entire system could change if all teachers at all levels adopted a more inclusive and affirming curriculum. A university in my area had recently added a "social and cultural studies" emphasis to its Education PhD program. In the spring of 2021 I applied to it and was accepted. With that, I started on a new path to changing how teachers create lessons for their students.

Now, I teach a class centered around social justice, designing lessons using counterstories, and developing representative perspectives for teaching elementary children. My students are future teachers, and the tides are turning in how education can involve both the essential skills for growth, as well as inclusive and diverse examples that reflect the fabric of our students' communities.

What exactly does this look like? The opportunities are endless, but a few ideas are broken down here, by age-group, to consider when choosing lesson content, organizing your classroom, or approaching school-wide activities with an affirming and inclusive mindset.

PRESCHOOL AND ELEMENTARY

Is age four too young to establish an inclusive classroom community? Absolutely not. During the formative years of elementary school, students are learning how to exist in the academic system. It is our responsibility as educators to communicate that everyone is welcome in our classrooms, everyone has value, and everyone has a narrative worth learning.

Have you ever thought about how gendered young classrooms can be? Items are color-coded, princess corners are built, and many teachers still start the day by saying, "Good morning boys and girls!" Adopting more genderneutral environments as early as preschool can set the tone for gender identity to be less prescribed for those young people who may be non-binary.

Inclusive literature can also go a long way. Children's books featuring marginalized protagonists still represent a small percentage of those published each year, but there are excellent options available. Some great titles include:

The Proudest Blue: A Story of Hijab and Family written by Ibtihaj Muhammad and S.K. Ali, illustrated by Hatem Aly

Sticks written and illustrated by Diane Alber

Rainbow Boy written by Taylor Rouanzion, illustrated by Stacey Chomiak

The Name Jar written and illustrated by Yangsook Choi

Introduce cultural exploration early on. Incorporate units like "Global Fridays." Play music from other countries and cultures. Have clocks that show times from around the world. Share the weather in multiple languages. Explore holidays and foods that are not native to your community. Make sure appreciation for other cultures is a part of students' lives from the youngest age possible.

MIDDLE SCHOOL

Children's concepts of identity begin to formalize in adolescence. One of the periods of development with the most anguish and progress, middle-grade teachers will tell you that these years are critical in developing students' sense of self.

Recently, the number of preteens and young teens expressing selfloathing behaviors, showing the onset of eating disorders, and even suicidal ideations has increased rapidly. Access to social media has been blamed by some educators. Isolation and increased screen time brought on by the pandemic probably haven't helped these feelings. In our classrooms and schools, we have opportunities to provide safe and inclusive spaces for young people to explore their identities and develop confidence and self-esteem.

Activities and clubs often start at this age. Did you know that students with disabilities are frequently left out when schools are marketing these clubs? Have you thought about how difficult choir can be for students with a reading goal? Is your school willing to get a sight guide for vision-impaired students? Clubs and organizations should be open to everyone, and often we say that is the case, but what barriers may be preventing all students from participating where you teach?

Middle school can also mean the start of homework. Not every child's home is conducive to learning. Many of your students may be watching younger siblings while their parents work evenings. Food insecurity is a real issue in this post-pandemic world, and that can mean homework is not a priority in the evening for every student. Some students' home language may be different than the one used at school, and they may not have access to help. Think about how inclusive your homework practices are and if your students are truly benefitting from them.

Does your school have a book club? Is it only led by reading and language arts teachers? How involved are your administrators, basketball coaches, and math teachers in promoting literacy and diverse books? Make it a point to start your math class with free reading and make sure *all* teachers are modeling inclusive texts and counterstories, not just school librarians. *Rick* by Alex Gino or *Lily and Dunkin* by Donna Gephart are both great choices.



HIGH SCHOOL

Citizenship, responsibility, and respect are all character traits at the heart of secondary schooling. The pressure to develop these attributes along with academic aptitude is a big part of high school education. Children are mere years from entering the workforce, living independently, and becoming civically engaged. Ensuring our schools reflect a diversity of ideas, cultures, and experiences is critically important. Additionally, providing inclusive and affirming content for teens helps to alleviate anxieties about entering the adult world and embracing their independent identities.

Popularity votes. Homecoming. Prom. Winter formal. Any time we ask students to vote for candidates we are opening up opportunities for hateful dialogue and non-



inclusive practices to arise. Titles such as "king" and "queen" enforce binary views of gender. What are your voting methods? Are they only in one language? Is this leaving students' opinions out? How do students with disabilities vote? If the voting isn't inclusive and the titles are not affirming, is this practice worth keeping?

Teaching marginalized voices is vital before graduation. High school students are moments from entering university or the workforce, and they need to understand the complex world they are about to dive into. Do you study the rights of Muslims in your government class? What flags are displayed in your geography rooms? How is the history of Indigenous peoples reflected in your work? Do you acknowledge the complicated relationship between Black people and the police? Great resources exist on all these topics.

Ultimately, as educators, we have a responsibility to ensure our classrooms and content are representative of both our students and the 21st century global community. The past two years have illustrated how one event can forever change our field, yet the foundation of our job remains the same: we must guide the students in our care toward knowledge. We can choose the path each day, however, and we may create remarkable impacts by making small changes toward more equitable, inclusive, and diverse content that recognizes and represents everyone, not just the majoritarian narrative.

BRITT JUNGCK is pursuing her PhD in Education with a certificate in Education for Social Justice at Iowa State University. A career educator, she began as an English teacher in 2004, and has taught students of every age from 11-65.

TEACH | LE PROF 13

EDITORIAL SPONSORSHIP

STEM Fellowship Program Targets Skills Gap in Cybersecurity

By Shannon Leininger, President, Cisco Canada



s the Canadian tech sector continues to surge, a skilled IT workforce is integral to our economic prosperity and competitiveness. This growth is even more prevalent in cybersecurity, with <u>one study</u> showing the demand for cybersecurity talent alone grows by seven percent annually across Canada.

The pandemic has also laid bare the security risks posed by hackers. Coupled with a well-documented shortage of cybersecurity talent across the globe, it's difficult for IT teams to keep pace with new threats.

We need to equip Canadians with the right mix of digital skills–and it's critical that we start early. According to Statistics Canada, just over <u>one-third</u> of Canadian students reported being taught to detect cyberattacks, such as phishing or spam, despite many young Canadians being digitally literate.

The private sector has an opportunity to help governments and educators close the digital skills gaps. With the right investments, resources, and partnerships to support cybersecurity education inside the classroom, Cisco will help fuel a digital talent pipeline allowing more Canadians to participate and thrive in the digital economy.

High School a Critical Juncture to Explore Career Options

We recently launched the Cybersecurity Classroom Training Program (CCTP) in partnership with <u>STEM Fellowship</u> to bridge the gap in education, spark interest in IT and nurture the next generation of IT leaders, bringing real-world content to help students safely navigate our digital world.

The CCTP is the largest cybersecurity education program for high school students in Canada, with a goal to reach upwards of 40,000 students and 2,000 teachers. Through core subjects like English, Health and Math, the CCTP brings relevant examples to the classroom, leaning into what students are seeing and hearing daily.

For example, in health, students learn to evaluate health and fitness information online to distinguish between evidence and data-driven information versus forgery. In business, students learn to recognize the characteristics and operation of an attack on digital business, and the techniques to protect organizations from a cyberattack.

The CCTP is funded by a \$12 million in-kind investment from Cisco Canada and is adapted from the latest cybersecurity courses from <u>Cisco's Networking</u> <u>Academy</u>–Cisco's largest CSR education program. Educators can access subject-specific modules, resources, and activities that seamlessly integrate with core subjects to teach online safety concepts and practices.

Teachers across Canada have free online access to the program which easily integrates into their curriculum. Those interested in the program can email cctp@stemfellowship.org to receive the resources they need to get started.

Cisco's Commitment to the Classroom

Education has rapidly shifted to hybrid learning models and new ways of teaching, but this evolution also presents barriers. The education industry faces tough challenges to achieve digital transformation that works for everyone.

But a positive, inclusive future is possible through solutions that are simple to use, work together seamlessly and are backed by world-class support.

At Cisco, we work with thousands of schools around the world to do just that. We support education inside and outside the classroom without compromising trust, security, or privacy. We believe by connecting people and technology, we can help drive new possibilities in teaching and learning.

Between curiosity and knowledge, there's a bridge.

S (III)

cisco

The bridge to possible

Field Trips: * Children's Museums

lay has been <u>shown</u> to have many socio-emotional and cognitive benefits for children. It is through play that children develop important skills such as communication, problem solving, and critical thinking. It is also how they learn to interact with the world and with others, explore their interests, and try out different ideas. Children's museums can be excellent environments to foster this creativity and curiosity through handson, multi-sensory environments. Check out the following selection of children's museums to find a mixture of online and in-person experiences, complete with plenty of unique and engaging exhibits.

Note: the information below is current at the time of writing. Please confirm specific availabilities with each location.



GLAZER CHILDREN'S MUSEUM

Tampa, FL • Grade level: K-5

Currently offering: <u>in-person field trips</u>, <u>virtual field trips</u>, <u>online resources</u>

The GCM's many imaginative play exhibits give kids the chance to try out different roles. Whether they're caring for animals at the Vet Clinic, saving the day at the Firehouse, or creating something extraordinary at the Engineer's Workshop, students are sure to have a blast as they discover and connect to the world around them. Note that the museum also offers sponsored visits for Title 1 Schools in nearby counties.

KOHL CHILDREN'S MUSEUM

Glenview, IL • Grade level: K-3

Currently offering: virtual field trips, online resources

While <u>in-person field trips</u> are not available at this time, the museum offers six different virtual field trip topics, from science and engineering, to animals and machines. Several of the field trips are narrated in both English and Spanish. Take a look at the teaching resources for STEAM lesson plans, classroom activities, and more!

LONDON CHILDREN'S MUSEUM

London, ON • Grade level: K-6

Currently offering: <u>in-person field trips</u>, <u>virtual field trips</u>, <u>online resources</u>

In-person field trips to the London Children's Museum include extended learning opportunities where children can participate in one of three 45-minute curriculum-connected programs. Students can dissect seeds and investigate root systems through the Natural Investigators program; build their own structures in Explore Engineering; create constellations and see a real meteorite with the Soar into Space program; or make their own fossil impressions during Dinos Rock!



Saskatoon, SK • Grade level: K-5

Currently offering: in-person field trips, virtual field trips

Wonderhub offers several different in-person field trips that focus on a range of subjects, from plants and animals, to mining and minerals, to culture and machines. The museum also provides two virtual field trips: a STEAMbased program and a creative storytelling program.

SAN DIEGO CHILDREN'S DISCOVERY MUSEUM

Escondido, CA • Grade level: K-3

Currently offering: virtual field trips, online resources

Students can design a sustainable work of art, grow their own plant, build a model of a museum exhibit, or even create a suncatcher through the virtual workshops offered by this children's museum. (Title 1 and low-income schools can apply for scholarship support to cover workshop fees.) Educators can also browse a series of free STEAM, art, and culture activities for implementation in the classroom. Note that in-person field trips are unavailable at the moment.

EVEN MORE CHILDREN'S MUSEUMS:

111

BOSTON CHILDREN'S MUSEUM Boston, MA • Grade level: K-12 Currently offering: <u>in-person and</u> virtual field trips, online resources

CHILDREN'S MUSEUM HOUSTON Houston, TX • Grade level: K-5

Currently offering: in-person field trips, virtual field trips, online resources

CHILDREN'S MUSEUM **OF MANHATTAN**

New York, NY • Grade level: K-5 Currently offering: virtual field trips, online resources

EXPLORE MORE **DISCOVERY MUSEUM**

Harrisonburg, VA • Grade level: K-5 Currently offering: in-person field trips, online resources

FLINT CHILDREN'S MUSEUM Flint, MI • Grade level: K-4

Currently offering: in-person field trips, online resources

Global Issues: Cyber Security and Privacy

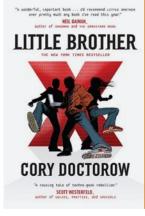
By Carlo Fusco

GRADE LEVEL: SECONDARY (11-12)

THEME: GLOBAL ISSUES

SUB-THEMES: CYBER SECURITY AND PRIVACY

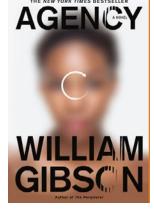




Little Brother by Cory Doctorow (Tor Books, 2008)



Attack Surface by Cory Doctorow (Tor Books, 2020)



Agency by William Gibson (Berkley Books, 2020)



Rush by Eve Silver (HarperCollins, 2013)



My Side by Norah McClintock (Orca Book Publishers, 2013)



Plum Rains by Andromeda Romano-Lax (Soho Press, 2018)



Today's students live in an increasingly connected world. They access the totality of the world's information from the palm of their hand. This digital landscape with all its societal benefits also has a dark side. As we access and interact with global information, we leave a trail of breadcrumbs behind that can be exploited by nefarious individuals and groups. The goal of this lesson is to acknowledge that the Internet is an important and useful tool, but we must also put in place some personal safety protocols to keep us safe.

LEARNING EXPERIENCE

MINDS ON PROVOCATION

While schools, hospitals and governments have a legal obligation to protect the private information of individuals, it is sometimes the individual who is the source of sensitive information about themselves.

To get students thinking about keeping their personal information safe, try these resources:

- Video: <u>McGill music student awarded \$350,000 after girlfriend stalls career</u>
- CBC article: <u>Quebec clarinetist awarded \$350K after ex-girlfriend sabotages career</u>
 <u>opportunity</u>
- Humorous video by AVG Technologies about social media and future employment: <u>Attention young professionals! What's in your digital baggage?</u>
- Podcast: Darknet Diaries episode 84, <u>"Jet-setters</u>," in which a former Australian Prime Minister leaks personal information
- Interactive website: <u>Be Internet Awesome</u>

After encouraging students to think about how they use the Internet, take time to help them focus on the topic. Many students will have misconceptions and bias from a variety of sources. A teacher-led classroom discussion is a great way to get the ideas out into the open and to address the misconceptions. As a whole class or in small groups, student thoughts and ideas can be recorded in a variety of formats such as: Mind map (free tools), Wordle (free tools), Jamboard, etc.

In a whole class discussion, teachers can generate a Pro/Con table for a variety of Internet services and practices. For example:

- Posting pictures on social media
- Sharing your password
- Using the same password on all sites
- Impact on employment
- Joining a questionable group

READ, PLAN, AND PRACTICE

Students are to select a book appropriate for their reading level and interest.

While reading the book, students are to record the following information in table format or other thought-organizing tools (<u>free tools</u>):

- Identify cyber security and privacy concerns as they are represented in the book.
- How did the previously identified concerns impact the character(s)?
- Suggest real world practices to reduce/eliminate the cause of these concerns.





• How did the characters deal with the impact of these concerns during everyday events?

Extension: Cyber Security and Information Security are rapidly growing fields of employment. Students can use a variety of career search and/or career coach online tools to further explore a potential career path. The roles and responsibilities for these careers can also lead to further research into personal cyber security practices.

MAKE, TINKER, AND MODIFY

Provide an opportunity for students to be creative in the expression of their learning. The learning should reflect what knowledge they gained about cyber security and privacy, the impact of good/bad cyber security practices and steps to reduce/eliminate the impact of bad practices.

Sample creative expressions of learning that go beyond the essay or poster:

- Artwork
- Poetry
- Video
- Podcast (interview or commentary) <u>How-To</u>
- Public service announcement (adapt from the podcast How-To)
- Letter to elected official
- Letter to the local newspaper (letter to editor/op-ed)

It is important for students to produce a product that is more than just an assignment for a teacher. Create a website or other online sharing resources to showcase and publish student work (Google Sites, Wordpress, etc.). Here are some <u>Creative Tools for Making and Sharing</u>.



LEARNING SHOWCASE

Provide students with the time and opportunity to discuss and look at the products produced by other students.

THE BIG THINK

The culminating activity should be one where students reflect on their learning and their personal role in cyber security.

Students should write a short exposition to illustrate their reflections with the following prompts:

- What did you learn about cyber security and privacy?
- What can you do to protect your identity and work in virtual spaces?
- What questions and/or concerns do you still have?

ADDITIONAL CANADIAN BOOKS AND BOOK LISTS TO SUPPORT THIS SUB-THEME

- Cybersecurity Fiction Books (Goodreads)
- <u>5 Novels about Information Security</u> (Computer Science Degree Hub)
- YA books about Computers, Hackers, and Hacking (Johnson County Library)
- Our 10 favorite non-fiction cybersecurity books (CyberWire)
- <u>The Best Cyber Security Books</u> (Five Books)

ADAPTATIONS FOR THIS LESSON

The majority of additional resources for this topic are online. Below are a few that can be used to extend the classroom experience and for personal growth.

Websites with a heavy focus on education:

- <u>MediaSmarts</u>
- <u>OpenMedia</u>
- <u>Common Sense Media</u>

Websites with a primary focus on protecting personal privacy rights:

- The Electronic Frontier Foundation
- Select articles from <u>Michael Geist</u> (Canada Research Chair in Internet and E-commerce Law)

Podcasts that focus on cyber security:

- <u>8 best cyber security podcasts</u>
- <u>Top 50 Cyber Security Podcasts</u>

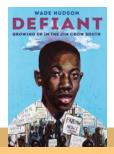
- <u>Online disinformation</u> (Government of Canada)
- Digital Citizenship for Educators (Canadian School Libraries Journal)
- Association for Media Literacy
- Digital Safety Resources from Be Internet Awesome

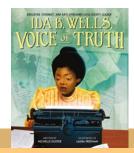
Bookstuff: Black History Month

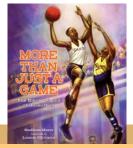
ebruary is Black History Month, a time to reflect on the legacy and contributions of the Black community. Although it is crucial to incorporate these voices into the curriculum all year round, this month can provide a good opportunity to delve deeper into important figures and events of Black history. Here are several books that honour and celebrate Black culture and experiences, to be shared with students not only during the month of February, but throughout the rest of the year as well.











1 BLACK BIRDS IN THE SKY: THE STORY AND LEGACY OF THE 1921 TULSA RACE MASSACRE

BY BRANDY COLBERT

Balzer + Bray (Oct 2021) Grade Level: 8-12

In her latest work of nonfiction, award-winning author Brandy Colbert provides a piercing examination of one of the most devastating acts of racial violence in U.S. history: the Tulsa Race Massacre. Note: don't miss the accompanying <u>Educator's Guide</u>.

2 BLACK WAS THE INK BY MICHELLE COLES, ILLUSTRATED BY JUSTIN JOHNSON

Tu Books (Nov 2021) Grade Level: 8-12

This powerful coming-of-age story follows sixteen-year-old Malcom as he travels back in time to Reconstruction-era America and meets real-life Black statesmen like Hiram Revels and Robert Smalls, while also fighting in the present to save his family's farm from being torn down by the State. Note: be sure to check out the corresponding <u>Teacher's Guide</u>.

3 DEFIANT: GROWING UP IN THE JIM CROW SOUTH BY WADE HUDSON

....

Crown Books for Young Readers (Oct 2021)

Grade Level: 5-11

Take a critical look at the struggles and resilience of the past through this moving memoir of a young Black man growing up in the deep South during the Civil Rights Movement.

January/February 2022

4 IDA B. WELLS, VOICE OF TRUTH: EDUCATOR, FEMINIST, AND ANTI-LYNCHING CIVIL RIGHTS LEADER BY MICHELLE DUSTER, ILLUSTRATED BY LAURA FREEMAN

Henry Holt and Co. (Jan 4, 2022) Grade Level: 1-2

This inspiring picture book biography introduces readers to the extraordinary story of Ida B. Wells, trailblazing journalist and civil rights activist, as told by her greatgranddaughter Michelle Duster.

5 MORE THAN JUST A GAME: THE BLACK ORIGINS OF BASKETBALL BY MADISON MOORE, ILLUSTRATED BY LONNIE OLLIVIERRE

Albert Whitman & Co. (Sep 2021) Grade Level: K-3

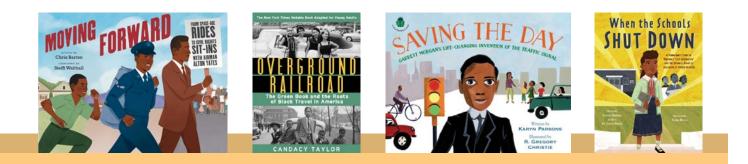
More than Just a Game celebrates the rich history of basketball from a Black perspective, looking at how Black communities shaped the sport into what it is today. Note: make sure to download the <u>Teacher's Guide</u> from the publisher's website.

6 MOVING FORWARD: FROM SPACE-AGE RIDES TO CIVIL RIGHTS SIT-INS WITH AIRMAN ALTON YATES BY CHRIS BARTON, ILLUSTRATED BY STEFFI WALTHALL

Beach Lane Books (Jan 11, 2022) Grade Level: 1-5

.

Students can learn all about Alton Yates, an Air Force veteran who dedicated his life to science, civil rights, and the progress of America, through this inspiring non-fiction picture book.



OVERGROUND RAILROAD: THE GREEN BOOK AND THE ROOTS OF BLACK TRAVEL IN AMERICA BY CANDACY TAYLOR

.

Amulet Books (Jan 25, 2022) Grade Level: 7-9

This young reader's edition of *Overground Railroad* recounts the history of the *Green Book*, which was published from the late '30s to the '60s to guide Black travelers in America.

8 SAVING THE DAY: GARRETT MORGAN'S LIFE-CHANGING INVENTION OF THE TRAFFIC SIGNAL

BY KARYN PARSONS, ILLUSTRATED BY R. GREGORY CHRISTIE

Little, Brown Books for Young Readers (Dec 2021) Grade Level: K-3

In Saving the Day, Karyn Parsons explores the little-known tale of Garrett Morgan, an inventor who created the traffic signal, gas mask, and other objects still used today.

9 WHEN THE SCHOOLS SHUT DOWN

BY YOLANDA GLADDEN AND DR. TAMARA PIZZOLI, ILLUSTRATED BY KEISHA MORRIS

HarperCollins (Jan 11, 2022) Grade Level: K-3

This autobiographical picture book looks back on the closure of schools in Farmville, VA, after the landmark civil rights case *Brown vs. Board of Education of Topeka*. Yolanda Gladden offers her true account of how one community triumphed together to educate its children despite the shutdown.

January/February 2022

TEACH | LE PROF 23

FEATURE



The Future of STEM: Changing Perceptions

By Martha Beach



f you ask a kid to draw a scientist, most of them will come up with the same image: an elderly man with wild hair wearing a white lab coat, holding a glass beaker and a microscope. It's a stereotype we all know well. But there's never been a better time to challenge that stereotype and show that science is for everyone.

It's so important to get kids—especially girls and other traditionally under-represented people—interested not only in science, but also in technology, engineering, and math (STEM). Even if you're not a coding wiz or a microbiology specialist, there are many ways to incorporate different aspects of STEM into the everyday classroom experience.



One of the few positives of the global pandemic is that it demonstrated how valuable the virtual world can be and how important it is in our day-to-day lives. The pandemic highlighted how STEM-based careers, especially those grounded in computer and information technology, will continue to be top jobs for our children in the future.

This is something Kimberly Nava Eggett, Digital Lead Teacher and tech coach at a K-5 public school in western North Carolina, strives to teach her students. Before COVID-19 shut schools down, she hosted a weekly morning coding session for kids from grades 1 to 5. Her goal? "To inspire a new generation of computer scientists, especially girls and students of colour."

She wants to set students up for success in the early grades, instead of being reactive later on. "This has to be done with intentionality," Nava Eggett says. "If there's not an intentionality around who we are targeting, it often ends up being for white boys." Women are vastly underrepresented in the STEM fields, making up only <u>28 percent</u> of the workforce, according to the

> American Association of University Women (AAUW). The gender gap is especially apparent in the fastest-growing and highest-paid sectors, like computer science and engineering.

January/February 2022

This disparity becomes noticeable as early as elementary school. Boys in grade 2 are more likely to say they are strong in math, whereas many girls lose confidence in their math skills by grade 3. By the time these kids reach college, women are significantly outnumbered in STEM majors: the National Science Board <u>reports</u> that females account for only 20 percent of engineering majors and just 18 percent of computer and information science majors.

MAKE IT ACCESSIBLE



As a teacher, you can help get kids hooked on coding, robotics, engineering, sciences, and more through exposure and encouragement. Computer technology is, across the board, the most widely applicable form of STEM. Nava Eggett and fellow teacher Rebecca Burry are working on a co-dissertation about how to leverage where students excel and use technology to help them do so.

Burry is a Digital Teaching and Learning coach with 13 Iredell-Statesville schools in North Carolina. She has been teaching for 16 years, half of which she's spent as a STEM instructor. She is also an adjunct professor with Appalachian State University in their Educational Media Technology department.

"We want to help teachers use an asset-based approach to enhance what kids are good at already," Nava Eggett says. In 2018, the pair met and realized how passionate they both were about making STEM accessible. "We want to make sure any opportunities [that] we missed when we were younger [are] offered to kids now," says Burry.

Nava Eggett agrees it's a learning aspect where she missed out. "Growing up as a girl and a Latina, I didn't see those things offered to me," she says. "I wouldn't have thought I was good at math or coding, but here I am teaching it."

WHERE TO BEGIN



As a teacher, you may not feel totally ready to jump into Python programming or computer engineering. Erin Petley-Kerr, a grade 4 teacher at Foundations for the Future Charter Academy in Calgary, AB, agrees it can be challenging to get started. "Most hesitancy stems from a lack of confidence," she says.

Burry recommends starting small and working your way toward more

complex aspects. "It's OK to take baby steps. This makes sure you're always moving forward. You may be moving at a different rate than others, but at least you're moving."

Petley-Kerr suggests beginning with introductory digital citizenship and safety lessons for younger students—like those offered by <u>Common Sense Media</u>—to give kids the opportunity to at least get out the devices and learn the basics. To go beyond safety, Burry points to the SAMR model of tech integration: substitution, augmentation, modification, and redefinition.

On one end of the spectrum, you could read a book on a tablet. The tech becomes a simple substitute. "You're dipping your toe in," Burry encourages. At the other end of the spectrum is creating and collaborating with technology so that it becomes the tool. The point is to root all sorts of lessons—STEM and otherwise—in technology.

Kids are digital natives and will likely figure it out before you do. "There's an intergenerational difference. They're not afraid to try things or click around," says Nava Eggett. Burry describes herself as part of the "push-button generation," but children today are more exploratory, so a key part of getting started with tech in the classroom is trusting the kids and being vulnerable.

"You have to be open to learning with the students, creating a learning partnership. You can showcase and model that continuous learning happens even with adults," Burry explains. Use the introduction of STEMbased lessons as an opportunity to learn alongside your students. "Part of this whole process is trusting the kids." Petley-Kerr knows this can be challenging in itself: "The hardest thing for teachers is to let go—allow the students to figure it out. But try not to be scared to do that," she advises.

UTILIZE RESOURCES



Once you're ready to learn alongside your students, dive into online resources. "There are lots of resources that are free that you don't have to be a computer programmer to understand," Nava Eggett says. <u>Code.org</u> is an accessible site for everyone. They have great activities to hook students on the basis of computer programming (like Minecraft, "Every kid loves Minecraft," laughs Nava Eggett). <u>Hour of Code</u> is also a fantastic resource, featuring hundreds of hour-long coding lessons for students of all ages, grades, and abilities. "The teachers don't have to do anything except get them on the website," says Petley-Kerr.

For younger grades, picture books are a great go-to. The <u>Zoey and Sassafras series</u> written by Asia Citro and illustrated by Marion Lindsay; or *Iggy Peck, Architect* and *Rosie Revere, Engineer* written by Andrea Beaty and illustrated by David Roberts all feature kids exploring the world through science. Even TV shows like *The Magic School Bus, Bill Nye the Science Guy*, and *SciGirls* are great STEM hooks for kids.

Inn

As a teacher, surround yourself with different networking groups on social media to gain insight and inspiration. Podcasts are also a great way to see what's going on in the world of STEM. (Nava Eggett and Burry even host their own podcast, <u>Through Our Lens</u>.)

Petley-Kerr recommends involving your community: bring in volunteer speakers or invite them to do a video conference. She invited a woman in the STEM sector talk to her students about her job and how she got into it. "The girls in my class were really interested," says Petley-Kerr. "Open it up to parents, aunts, uncles, and leave lots of time for kids to ask questions."

Don't forget that not all of STEM has to be tech focused. Even just using different blocks or craft material to build towers, bridges, or lever and pulley systems is a great way to integrate engineering and math without requiring any tech know-how.

If you're feeling like you can take a bigger step, follow in Nava Eggett's footsteps and start a coding club. Or follow Petley-Kerr's lead: she hosts a "techspert" club, where she helps older students learn skills that they can then teach to younger grades in a one-on-one peer support format.

By encouraging all our students, especially girls, to get involved, we can slowly start to change the future of STEM. "We want to change the perceptions of all kids to see scientists as anyone," says Burry. This is especially important because, as Petley-Kerr puts it, "this is the world we're living in and this is where we're going."

Burry and Nava Eggett hope that their research helps take out gender and ethnicity. "It's not just about girls, it's about making sure everyone has the opportunity," Burry says.

The future is bright, as long as we are setting kids up to go after whatever they're passionate about, and teaching them how to use tech, science, engineering, and math as tools to make that happen.

MARTHA BEACH is a graduate of Ryerson University's journalism program. Currently, she is a freelance writer and factchecker in Toronto.

January/February 2022

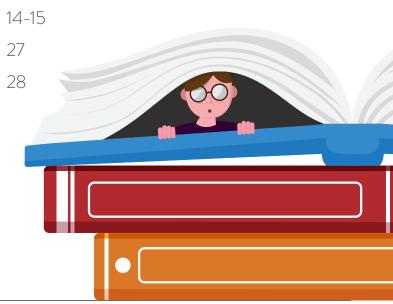


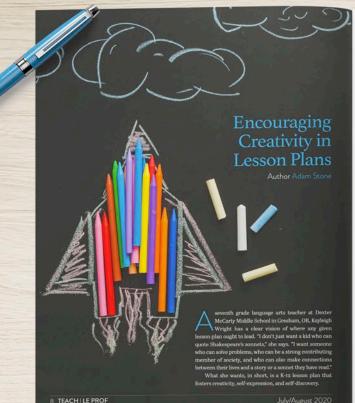
2-3

9

AD INDEX

Crabtree Publishing
Concept of One
Cisco Systems
Mystic Learnings: The Group of Seven
TEACH Magazine





This is not easily achieved, says Cassie Tabrizi, CEO of educational consultancy, Create-abilities, "It can be incredibly easy to treat lesson planning like a checklist. Objective: check: Standards: check. Activity: check," she says. Education experts any there is a better way. A thoughtful lesson plan can encourage exploration, freeing kids to speak in their own voices and infusing creativity into the

learning process. Parents and teachers see the value in this callup research found 87 percent of teachers and 77 percent of parents say teaching that incorporates creativity in the learning process has a bigger payoff for students.

FIDST STEPS

In order for students to find their own unique voices, they first need to feel their voices are valid. Before settling down to craft the lesson plan, teachers need to make an upfront investment in relationship-building. "Whether it's through surveys or one-on-one interviews, you have to know who is in your classroom in order to crafte an environment in which they will take risks for self-discovery," says Rowens Shurn, senior class and party mercialist at the National take risks for self-discovery, says howens churn, sendo policy analyst and program specialist at the National Education Association. Shurn taught in Prince George's County, MD schools

snumr taught in Prince George's County, MD schools for 14 years, and found that this eavy effort paid dividends when she moved on to the actual lesson planning. 'You take that information—who they are, what they are interested in—and you have that profile in front of you when you make your lesson plan," she says. 'It's what

when you make your lesson plan," she says. "It's what allows your students to show up as their authentic selves." Deborah Poulos is a teacher with over 27 years experiences and the author of *The Connecious Teacher*. She studied every student's cumulative record files at the start of every year, and built that knowledge into her lesson planning. "I had strategies to individualize and differentiate so I could meet student at their levels," ahe says. "They knew I thought they were important."

PLAN FOR CHOICES

How to write a lesson plan that empowers those valued individuals to speak in their own voices? Step at: Give them choices. Students learn in different ways, and the lesson plan needs to reflect that individuality.

When Wright gives out a persuasive writing ignment, for example, she keeps it loose. "It can't

July/August 2020

00

always be five paragraphs, five sentences in each paragraph," she says. "You can get the same amount of information from them if you let them do it in different

information from them if you let them do it in different ways. They can create a commercial, they can create a blog, they can [create vlogs]. I just need to see that they can make a persuasive argument." At The Avery Coonley School in suburban Chicago, second grade teacher Sarah Batzel even finds ways to make math an open-ended exercise. Text's aga I vant to talk about fractions. I give them patterned blocks and ask them to build a figure that represents 'one-thrid'. They grapple with the concept, but there is more than one way of doing in the same. "Them makes their same rohotes".

grapple with the concept, but there is more than one way of doing it, "he says. "They make their own choices." She did the same in science class, as kids designed their own glue. "We tested corn starch, we tested flour, then the children got to design their own mixture in their own way, using the data we had collected," she says.

Its that combination of data—of facts, information, and a clearly-defined end product—that keeps this kind of open-ended work from becoming a free-for-all. 'Parameters foster creativity," Batzel says. "It's not just 'go make a shape.' There is real math in there, and they work within that.

within that." Shurn builds her lesson plans on a tic-tac-toe approach: Eight ways of mastering the information (pick your own) plus a blank square if none of the others appeal to you. "Some people can demonstrate their abilities visually. Another student may be more kinesthetic, so

TEACH | LE PROF 9

SUBSCRIBE TODAY! GET A 1-YEAR SUBSCRIPTION FOR ONLY \$12.99* YOUR SUBSCRIPTION INCLUDES: 2 PRINT EDITIONS + 6 DIGITAL EDITIONS



VIRTUAL WINTER FIELD TRIPS

EDUCATION FOR TODAY AND TOMORROW

KIDS FIRST, CONTENT SECOND: TEACHING THROUGH COVID-19

TEACHING ABOUT PRIDE



PLANS

ENCOURAGING

***PRICE IN USD**

CREATIVITY IN LESSON