

SEA

SECULAR | ECLECTIC | ACADEMIC
HOMESCHOOLERS

**Escaping the
Early College
Credit Rat Race**

**How to Start a
Virtual Book Club**

**7 Tips for How
to Handcraft a
Secular, Eclectic,
Academic
Education**

**Welcoming
Diversity**

**The Importance of
Teen Programs at
Conferences**

Worldschooling

**Making History
Matter**

**The Path Towards
Science Literacy**

**Critical Thinking:
Metrics and
Methods**

July 2020



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Reviewed: July, 2020 by Blair Lee, M.S.

Letter from the Editors

July 2020

Dear SEA Community,

Whether you are new to SEA Homeschoolers or you have been a part of it for a while, we want to welcome you to this large, engaged, and supportive community for people seeking guidance as they negotiate their child's journey through learning. The word "homeschoolers" is in our name, but we leave it up to you on how to define that for your family. If you identify as a homeschooler and feel that you are homeschooling your children, that works for us. Whether your plan is to homeschool for 2 months, until there is a vaccine, or all the way through, we are here for you. If you are not sure if you are going to homeschool, and you are here to ask questions and learn more, you have come to the right place. If your children are doing the online program through their local school and you are looking for extracurricular ideas, ask away.

This time last year Blair was getting ready for her son's freshman year at college. She was excited to see what the next chapter of his life would bring. It was also poignant to have him leave the nest. She didn't think he would come live at home again, and she knew she would miss him. And then, like a lot of college students did in early March, he did come home. Soon after he came home, he came down with the coronavirus, and then Blair caught it from him. They were very sick from it. She says it is different from any other illness she has ever seen or had. Both she and her son had a wide range of intense symptoms, and were lucky enough to have made a full recovery. Having seen Covid-19 up close, we both understand the importance of bringing the number of cases down. The problem with limiting contact with others, however, is that it is isolating. Feelings of isolation can be especially hard to deal with when things feel worrisome and unsettled.

When we first started pulling this issue together several months ago, it was going to be our conference issue. We wanted to set the stage to prepare for and support what is usually a busy conference season during the summer. Homeschooling conferences are an important and beneficial opportunity for us all. They empower those just beginning to homeschool, bolster those who have been doing this a while, and give everyone new ideas and a special sense of community. Conferences are the absolute opposite of isolation, which makes this summer of cancelled conferences even harder to endure. Fortunately, many of the conferences, including the SEA conference, have seamlessly adopted a virtual format. It may not be the same as gathering in person, but we are all making the most of this changed world we need to adapt for. We are still coming together, learning, discussing, and setting up the best possible educations for our children. In the end, this issue is fulfilling the mission we had for it from the beginning, which is to offer a series of articles (and more) that cover many subjects and skills of interest to the homeschooling community, just like a conference. We want to extend a germ-free virtual hand, and say welcome to the SEA Homeschoolers community. Please ask your questions, share your thoughts, and always remember, you have a group that is loving, supportive, and there for you when you have questions about home educating your children.

Your editors,

Samantha Matalone Cook and Blair Lee



www.secularelecticacademic.com



Escaping the Early College Credit Rat Race

Written by Lindsey Sodano

Here's something you probably already know: our country has a huge higher education affordability problem. According to *U.S. News & World Report*, the average cost for the 2019-2020 school year for tuition and fees for a private college rose to \$36,801. And that doesn't even include room and board! Those are the kind of numbers that can keep parents awake at night, so it's no surprise that many families are committed to taking steps during high school—and in some cases, during *middle* school—to scoop up as many college credits as possible before starting college.

For many, the effort to squeeze several semesters of college learning into high school can turn into quite the frantic rat race. Students often push themselves to the limit to pass

rigorous Advanced Placement (AP) tests. They sign up for large loads of dual enrollment courses at their local community colleges. Many high school students feel trapped between a rock and a hard place. Sometimes it seems like the only two choices available are to make high school a miserable experience full of grueling classes and tests or else head off to college with no credits saved up, facing the probability of graduating under a mountain of crushing debt.

The school district in my hometown of Mason, Ohio made national news last year when our superintendent announced game-changing measures to combat the mental health strain taxing local students. Changing the calculation formula for grade point averages, scrapping the valedictorian title, and suggesting a limit of three AP classes per student per year were all

meant to ease the pressure. These measures might work for public school students, but how are homeschoolers facing the college credit challenge? It turns out homeschoolers have more than a few tricks up their sleeves to solve this problem. Here are a few tips to help your homeschooled student escape the early college credit rat race:

“For many, the effort to squeeze several semesters of college learning into high school can turn into quite the frantic rat race.”

#1 Be an awesome guidance counselor

You’re already an awesome teacher, right? You can do this! It’s your job to help your student look into the vast array of college credit options available. This can be tricky. Not all sources of early credits are accepted at every college. For example, if your student has their heart set on Harvard, don’t focus on College Level Examination Program (CLEP) test credits. CLEP credits are widely accepted, but not at Ivy League schools.

A good starting place is the “Transfer Credit” webpage of the college your student is targeting. You can usually find out which types of credit —*and how many*—the school will accept.

#2 Determine if CLEP testing makes more sense than AP testing

I’m the first to admit I have a huge bias in favor of CLEP testing. Both CLEP and AP tests

come from the same company, the College Board. Both are ways to test out of college-level courses based on previous coursework. But while AP tests are accepted at more institutions, if your student plans to attend a school that accepts CLEP, CLEP might be the better way to go for several reasons.

Most CLEP tests do not include essays, so if your student isn’t a fan of composing gorgeous prose under pressure, CLEP is the winner. In addition, CLEP tests can be taken whenever your student is ready, while AP tests are only administered on certain days in May. My son has prepared for and taken CLEPs in August, September, January, and February of this school year so far. Spreading the tests out across a few months allowed him to prepare properly for each test instead of scrambling in May to complete them all at once. One final advantage is that CLEP tests are offered in math levels lower than Calculus. If your child is planning on majoring in, say, English Literature, credit from CLEP College Algebra might be sufficient for their degree. They can certainly continue studying math throughout high school and pursue higher level tests, but at least the bare minimum is covered.

#3 Take advantage of your state’s dual credit option (if offered)

Many states offer dual credit programs where students can take free or low-cost college courses that count for both college and high school credit. Unfortunately, some states completely shut homeschoolers out of these plans. In my home state of Ohio, homeschoolers *are* able to participate, but all the homeschoolers in the state have to split a fairly small pot of funding. Still, it’s better than nothing, and I just learned that the community college in my town offers huge discounts to homeschoolers to reduce the cost of the credits the state won’t cover.

To learn the specific rules in your state, visit your state Board of Education website. It's also helpful to connect with other parents in your state who may be able to help you with the tricky ins and outs of your state's program.

#4 Look into sources of ACE-approved credits online

The American Council on Education (ACE) isn't a source of credit, it's an organization that evaluates the quality of non-traditional learning sources and decides whether they should be college credit-worthy. Then individual colleges decidewhethertoacceptACE'srecommendations or not. Online course providers like Sophia (sophia.org), Study.com, and Straighterline (straighterline.com) offer ACE-recommended courses. These are often affordable, but a recent offer has made Sophia's courses more attractive. To help students continue to pursue college credit from home in the midst of the COVID-19 crisis, Sophia is offering all of its online courses for free until July 31, 2020. These courses usually cost over \$300, so my son is working on racking up as many of these as he can. But be careful with this option, because ACE-recommended credits are accepted at fewer colleges than CLEP tests and dual enrollment courses. However, we're not too worried if my son ends up attending a school that doesn't accept his Sophia credits. The worst-case scenario is that we paid nothing and he learned something!

#5 Remember that credit-gathering and learning aren't 100% connected

This seems counterintuitive, but it's true. The credit you earn and the things you learn aren't always as related as you'd think they would be. I'll give you an example: My son is currently studying

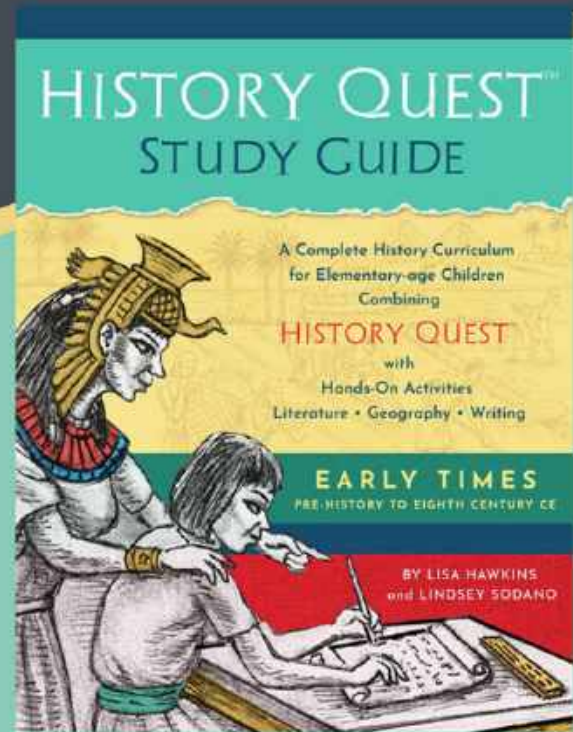
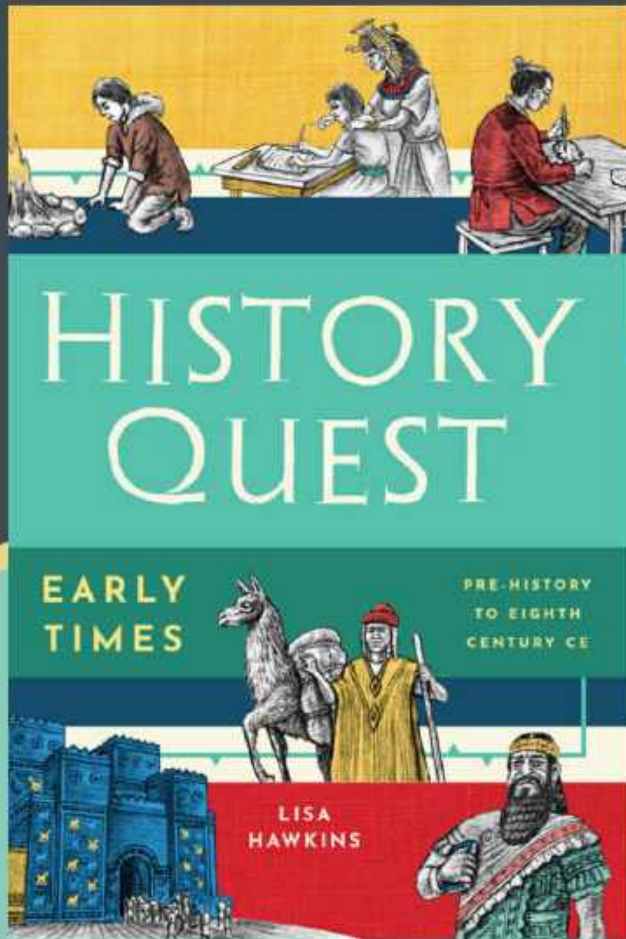
for the CLEP American Government test. He has a deep interest in the history of elections, political communication strategy, political polling, and the history (and future) of the Electoral College. A few of these items might show up on the test, but not to the extent to which he knows about them. And once he takes the CLEP test, he's not suddenly going to stop caring about these issues. Our rule is to learn what you need to know to pass the test, and then... keep learning!

Earning early credits doesn't have to be overwhelming and stressful. There are ways to scoop up plenty of college credits during high school and ease the financial burden of higher education. According to the U.S. Department of Education, only 60% of students seeking a bachelor's degree actually graduate—and that's after *six years*, not four! By pursuing credits before ever entering college, your student will save money and increase their chances of earning a degree.

Bio:

Lindsey Sodano is a writer and editor with degrees in English and education from Boston College. She is the development editor for the History Quest chapter book series and the co-author of the accompanying study guides. Lindsey has three kids and runs a rather boisterous and sassy homeschool. In her spare time, she enjoys participating in community theatre and visiting theme parks with her kids. Her favorite children's book for read-aloud time is *The Maggie B.* by Irene Haas, and in case you were wondering, her Hogwarts house is Slytherin.

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Curriculum Review:

High School Writing with Daniel Park's "How Would You Rule?"

By Dayla Learning

Written by Samantha Matalone Cook, MAT

Like many, I'm starting to look at our academic plans for next fall. With one of my kids in college classes, I'm down to one high school student and one middle school student and their participation in planning is essential.

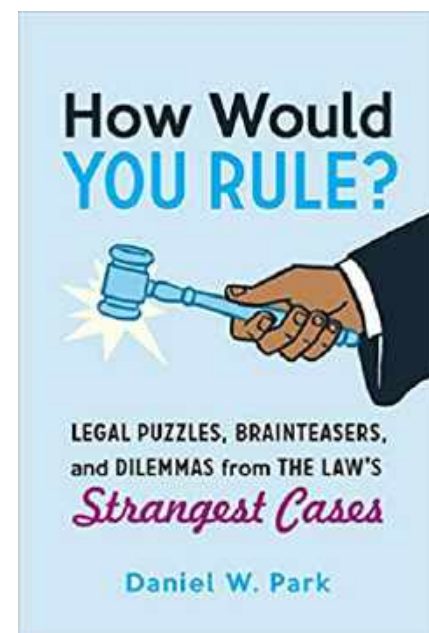
In particular, my son is one of those kids who used to be resistant to just about everything. Anything I did had to be interest-based, flexible, and kinesthetic to keep him engaged. For several years I have been helping him build his endurance for more focused work, and this year has seen a huge shift in his abilities and motivation.

In our meeting a few months ago to map out his 10th grade year, one of the subjects we agreed on for the fall was U.S. Government and Politics. Not only is this a new interest of his that I want to support, but this is also an election year and the perfect opportunity to encourage the development of an informed voter BEFORE he begins voting. Understanding how our political system works and what role issues play in our elections is important. Providing a foundation for voting before a young person is old enough to vote does two things: it makes them more likely to vote when they turn 18, and it increases the likelihood of engagement in the political process through research, activism, volunteerism, and communication with our elected officials.

Through the lens of the 2020 election, we'll be covering quite a bit of history and political

science. Since I always infuse language arts into every subject, we determined we are going to study rhetoric through the lens of campaign marketing and debate strategy. I wanted to add something though, specifically to beef up our exploration of the judicial branch, and I ended up finding the perfect addition: Dayla Learning's High School Writing Course on Daniel Park's *How Would You Rule?*

This writing course is by [Dayla Learning](#), a humanities-focused website full of courses designed and taught by Michelle Parrinello-Cason, Ph.D. She teaches live, online classes as well as offering self-paced online classes through her website. Because my son's schedule changes every week due to a class he takes at the local high school (they have a rotating schedule), committing to a live, online class is difficult for him. I'm always grateful when educators offer self-paced classes. They work well for situations like ours, and for asynchronistic learners who need more time or attention in some areas.



How Would You Rule? is laid out as a twelve-week course, and uses the book *How Would You Rule? Legal Puzzles, Brainteasers and Dilemmas* from the *Law's Strangest Cases* by Daniel Park, a lawyer and law professor. The book is full of intriguing cases that challenge how we think about the law, and provides plenty of opportunity for debate. The class includes weekly reading guides, vocabulary, introduction to relevant concepts, reading quizzes, writing guides, and four essays. Students do not read the entire book, instead focusing on those cases in the text that provide a substantial platform for them to develop and articulate their opinions. Each week starts with an overview, and the directions for each assignment are clear and concise. There are some videos included, but they aren't very long and each one has important and interesting information to offer. There are also plenty of links to resources should your student find a subject particularly interesting and want to follow it further. Finally, there is a section for facilitators for those who would like some guidance on giving writing feedback to their students.

I've personally read every section and watched every video in this course and am looking forward to using it this fall. There is enough information to support those who are less experienced in teaching writing guide their students, while those who are more comfortable with teaching writing will find plenty of ways to add or modify according to style and preferences. I'm one of the latter, but find it a relief to not have to design every course we do, especially when I find one that's done well.

While we haven't done the full course together yet, for the purpose of getting some student feedback, I did flip through the entire course with my son and we read one of the case studies from the book together to get a feel for the tone of the book and the overall feel of the course. We

were both immediately engaged and fell into a debate that waxed and waned over several days. We both agreed that this course is going to be an interesting and fun addition to our fall studies, and I'm already planning on ways to connect the concepts presented to current legal issues and dilemmas, especially ones that may have an impact on the 2020 election. And to be honest, I'm now also eyeing her course based on Malcolm Gladwell's *Outliers*, a book I found fascinating and think my son would end up feeling the same way about.

If you are interested, can check out [Dayla Learning](#) here for more information on her class offerings.

Bio:

Samantha Matalone Cook, MAT, is an educator, historian, writer, maker, and speaker. She has almost three decades of experience in education, program development, and the arts and has worked with both small and large organizations to create educational programming that centers and connects the learner to concepts and skills. She has taught in classrooms and in private workshops, mentored other educators, and worked for and with many museums including the Smithsonian. Samantha has two teens and one preteen, all home educated; the oldest of whom has recently fledged into college. To see her past and current projects, including her blog, her book on Project-Based Learning, and Pandia Press History Odyssey curriculum, please visit www.samanthamatalonecook.com



How To Start A Virtual Book Club

Written by Dr. Michelle Parrinello-Cason

Book clubs are perhaps the perfect mix of academic and social, and they're a particularly excellent way to bring people together virtually. Meeting to discuss a book provides participants with a focus without putting too much academic pressure on the conversation. Book clubs are wonderfully flexible and can be adapted to meet the needs of a particular group with ease.

Got a group of voracious readers? Meet every week! Have a bunch of busy people who struggle to get through a book? Meet once a month! Have casual readers who just want to chat? A book club is perfect! Want to dive deep into every aspect of the text? You can do that, too!

Book clubs are also excellent additions to homeschooling curricula. They provide the chance to build a habit of reading and set pacing goals to increase your reading speed and fluency. They offer the opportunity to ask questions and

hear different perspectives to truly understand difficult texts. Book clubs with themes help to draw connections across different genres and historical periods, helping participants synthesize information — a key research and critical thinking skill.

Finally, book clubs do not need to be the end of the exploration. They can provide a basic framework of books with endless opportunities for expansion and deeper dives. Use a book club as your spine and then go deeper. Craft writing prompts and write essays. Find a partner from the club who wants to explore the same aspect of the book you do and create a project. Journal about your reading experiences to self-reflect on your strategies and approaches. Put on a puppet show. Start a podcast.

I hope I've convinced you that book clubs are an excellent addition to your homeschooling

practice (whether it's for kids or adults!), and now I'd like to share some easy steps for getting started if you want to make a virtual book club of your own.

Step 1: Pick a Format

Even before you pick books to read, you should decide how you're going to "meet." There are a few different ways that you can interact:

- Asynchronously- While you may be reading the book at the same time, you don't necessarily have to all have the same slot in your schedule free to talk about. You can share ideas through discussion boards and video posts, letting you interact without having to sync your schedules across time zones and other obligations.
- Synchronously- Just because you're not physically together doesn't mean you can't capture the spirit and the feel of a face-to-face book club. If you all join a video or voice chat at the same time, you can have real-time discussions.
- Hybrid- You don't have to pick between the two! A great book club can have both asynchronous and synchronous elements, allowing people who can't always participate in the live meeting to still take part in the community you're building. It also allows people who best connect in real time the opportunity to do so. It's the best of both worlds!

Step 2: Pick a Platform

There are lots of different platforms to use for a book club. The best bet is to choose a platform where the bulk of the participants are already active. Facebook, Google Drive, Google Classroom, or a Wordpress site are all possibilities

for setting up asynchronous interactions.

Zoom is the most popular synchronous platform. Skype or Google Hangouts would also work.

Step 3: Choose Your Pacing

Now that you know how you'll be meeting and what technology or platform you'll be using, there's one more step before you start choosing the books themselves. You need to decide how often you'll meet (which therefore determines the reading pace).

A weekly book club might make sense for voracious readers going through relatively short works. A monthly book club is the most popular and seems fairly easy to manage. There's no rule that says you have to meet that often, though, so if reading a book for six weeks or two months keeps everyone's stress levels down and makes it fun, go for it!

Step 4: Choose the Books

You've made it to the fun part! It's time to pick books!

It might be a good idea to poll participants and see what they have in mind. Do they want to read fiction or nonfiction? Do they want to explore the classics or dive into new releases? Do they like a particular genre? Are there some content goals to connect to a larger homeschooling lesson or discipline?

There are also no rules that say you have to stick with a single genre, format, or length throughout your book club.

Personally, I really enjoy book clubs that operate around a theme for a set of books. When there's a single topic that can weave together some classic and modern fiction with nonfiction,

I leave feeling like there was a really deep and meaningful exploration of multiple perspectives.

Some considerations to make when choosing books is accessibility. It's not always feasible for everyone to purchase new books (especially if you plan to make this an ongoing book club). Check with participants to see what kind of access they have to library services and used books. Keep in mind that services like Hoopla are on-demand while other services may have limits to how many copies of an e-book can be checked out at once.

Step 5: Determine Your Organization

Whether you want to appoint a leader or have a more egalitarian approach to your discussions, you will need some kind of order and organization to keep things moving. If you're meeting asynchronously, how often will you post discussion questions and links? Who will be posting those?

If you're meeting live, who is guiding the conversation? Will you take turns? Will everyone be expected to speak, or is it okay for some people to sit back and listen?

Some of these guidelines will change as you fall into rhythms and adapt the flow of your particular group, but it's a good idea to think about them ahead of time. The biggest downfall to a book club (and, really, almost any plan) is having good intentions without concrete follow through. Protect your new idea from that fate by taking the time to map out a framework before you get started.

It's also tempting to just say "whoever wants to post can post" or "whoever wants to lead can lead," and that's great! But don't rely solely on that. Appoint someone to post a minimum number

"There are also no rules that say you have to stick with a single genre, format, or length throughout your book club."

of discussion questions for each book. Determine someone who will start out as the discussion leader each time — even if they will pass the torch mid-session.

Step 6: Add Some Extras

A book club is pretty low maintenance. If you have some people, a book you all read, and a way to communicate, you did it! Congratulations!

However, you don't have to stop there. If you'd like to keep your book club interesting, engaging, and creative, you can play around with some other ideas. Here are a few to get you started, but I'm sure you can come up with plenty on your own if you take a little time to think about it. Don't be afraid to lean on the talents and passions of your particular group!

Idea 1: Participate in Character

One of the best elements of book clubs is that you get a chance to talk about your favorite (or not-so-favorite) characters. Take it a step further and show up in character. Dress up! Respond like your character would!

You can have people choose character assignments ahead of time to make sure everyone is represented or just let people come as they choose and roll with it.

Planning a few discussion questions that are specifically designed for characters to answer can make this activity as educational as it is fun.

Idea 2: Incorporate Writing

Sometimes just showing up to a book club meeting makes it hard for people who need more time to think to fully participate. Using some planned writing prompts lets those who like to choose their words more carefully have time to think through their response before sharing.

It's important to take the pressure off of these writing activities. They aren't going to be shown to anyone else, and they aren't being judged on grammar or spelling. They're just a way to get your ideas on the page before you choose which parts you want to share with everyone else.

Idea 3: Create Groups Intentionally

Many online meeting platforms allow larger groups to separate into smaller groups for more focused discussion (Zoom's "breakout rooms" is one popular way to do this). If you have participants fill out some information beforehand about their thoughts on the books, you can pair people based on their particular perspectives and interests. Here are some ways to put people together:

- Shared favorite character
- Shared response about what they would have done in a character's position
- Shared favorite line

Use the small groups to let those who have this shared interest talk and explore their ideas first, and then bring everyone back together into a large group to have a more robust, conflicting conversation. Often, letting people talk with those who see things the same way first helps them to be more confident and clearer when they're discussing ideas with those who disagree.

Step 7: Reflect, Revise, and Keep Going

Some of the things you try won't work out. Some books will be duds. Sometimes everyone will get busy and won't finish in time for the meeting. Sometimes you'll try a creative way to interact that will fall flat.

None of that means your book club is a failure. Change up the book list. Try something new. Give an extension when no one has finished and try again in two weeks.

Being able to reflect on what you really hope to get from this experience and being willing to experiment to get it is a recipe for success.



Bio:

Dr. Michelle Parrinello-Cason is an English professor and homeschooling mom of two who founded [Dayla Learning](#), a site for homeschooling the humanities with humanity. She is also the co-founder of [SEA Online Classes](#), a new platform for innovative, hands-on educational experiences offered by passionate experts. Through SEA Online Classes, she leads monthly sessions for both the Tween and Teen Book Clubs, helping learners get excited and engaged in the material, often with themes that connect books across different months.

Book Clubs for Teens and Tweens Starting Now!

There's a new book each month for September 2020 through May 2021! Whether you're looking for dragons and adventure, narrative nonfiction, graphic novels, or essays, we have something for everyone! Join in as we move through a wide range of topics and approaches. Pick and choose the books that interest your family or bundle them together and sign up for the whole academic year!

Each month's Book Club comes with access to an online classroom that includes:

- ◇ A suggested reading schedule
- ◇ A PDF reading guide with comprehension questions
- ◇ Vocabulary activities
- ◇ Discussion board posts in our online classroom
- ◇ Writing/multimodal project prompts related to the reading
- ◇ An invitation to a live discussion
- ◇ A recording of the summary of the live discussion



**Get full access to the Book Club for \$10/month.
Bundle all 9 books for \$70 and get 2 months free!**

Tween Book Club Selections

- ◇ September: *Amy's Eyes* by Richard Kennedy
- ◇ October: *A Wrinkle in Time* by Madeline L'Engle
- ◇ November: *Matilda* by Roald Dahl
- ◇ December: *The First Rule of Punk* by Celia C. Perez
- ◇ January: *The Last Unicorn* by Peter S. Beagle
- ◇ February: *Esperanza Rising* by Pam Munoz Ryan
- ◇ March: *Drowned City* by Don Brown
- ◇ April: *Leviathan* by Scott Westerfeld
- ◇ May: *Dealing with Dragons* by Patricia C. Wrede

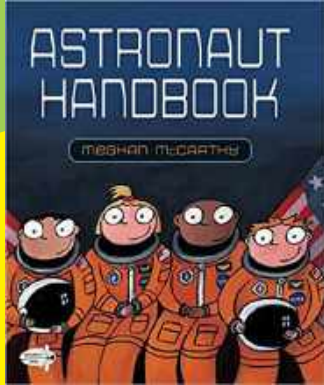
Teen Book Club Selections

- ◇ September: *Moxie* by Jennifer Mathieu
- ◇ October: *Here We Are* edited by Kelly Jensen
- ◇ November: *Watership Down* by Richard Adams
- ◇ December: *Tailchaser's Song* by Tad Williams
- ◇ January: *The Tipping Point* by Malcolm Gladwell
- ◇ February: *Spinning Silver* by Naomi Novik
- ◇ March: *The Song of Achilles* by Madeline Miller
- ◇ April: *Turning 15 on the Road to Freedom* by Lynda Blackmon Lowery
- ◇ May: *Brown Girl Dreaming* by Jacqueline Woodson

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Astronomy Themed Books, Documentaries, & Movies

Written by Blair Lee, M.S.



[Astronaut Handbook](#)

This book is perfect for children ages 3 to 7 who want to know what it takes to be an astronaut. It has engaging text with humorous illustrations that will draw young listeners and readers in.



[A Hundred Billion Trillion Stars](#)

This is a great book for children who are obsessed with numbers. It is also good to use as a read-aloud to incorporate math and language arts. The age range for this book is very

broad. I could see some preschoolers liking it, but I could also see children up to 9 enjoying it.



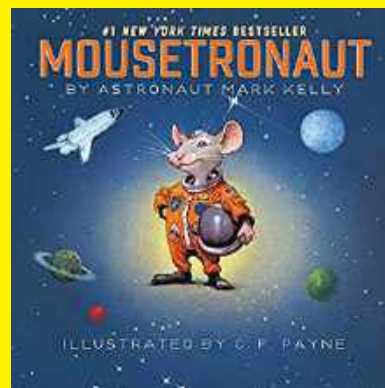
[International Space Station](#) (Let's-Read-and-Find-Out Science 2)

The Let's Read and Find Out series is a great way to incorporate extra reading into science lessons or to include nonfiction reading into your language arts. The science in them is solid and well explained. My son enjoyed them when he was young, and my grandchildren now ask to have these same books read to them. This is a good book in the series that is in my collection, but you really cannot go wrong with any books in this series.



[I am Neil Armstrong \(Ordinary People Change the World\)](#)

Do you have a child who dreams about traveling to space? This engaging story tells how Neil Armstrong, a kid from a farm in Ohio, became an astronaut. It was fun to learn some of his story. Grades K - 2 (or 3).



[Mousetronaut: Based on a \(Partially\) True Story](#)

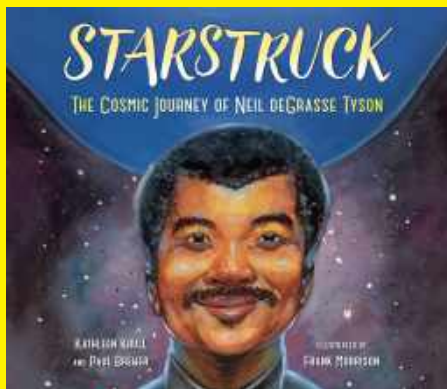
Astronaut Mark Kelly tells the story of Meteor a mouse who saved the day. The illustrations

are fantastic and the story is unique and interesting. There is also information about day-to-day life on the International Space Station. Grades K - 3.



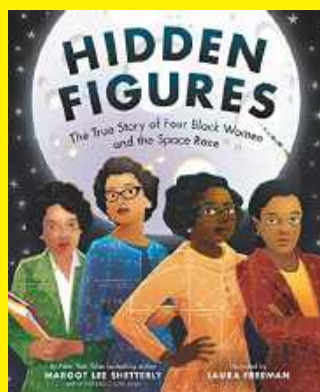
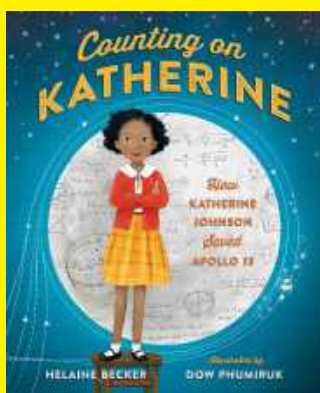
[Margaret and the Moon](#)

There are several biographies on this list. I think it is important for kids to have access to books about people just like them who, like Margaret Hamilton, did something amazing. Grades 1 - 3.



[Starstruck: The Cosmic Journey of Neil deGrasse Tyson](#)

This is a wonderfully told biography about the best known astrophysicist of our time. Kathleen Krull is the author. I think she is unparalleled at writing superb biographies for young people. She does not disappoint with this one! Grades 1 - 4.



[Counting on Katherine: How Katherine Johnson Saved Apollo 13 & Hidden Figures: The True Story of Four Black Women and the Space Race](#)

Both of these books are excellent. If you have seen the movie hidden figures then you are familiar with the story. *Counting on Katherine: How Katherine Johnson Saved Apollo 13* focuses on one of the women from Hidden Figures. In addition to covering the important work these women did at NASA, the book *Hidden Figures: The True Story of Four Black Women and the Space Race*, discusses some of the societal issues that these heroic women dealt with. Grades 1 - 3.



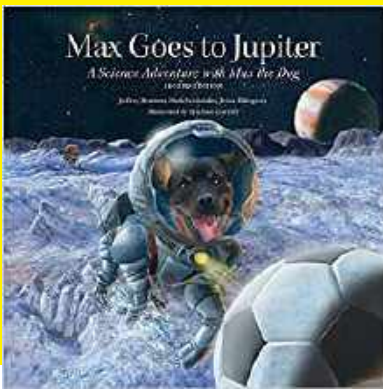
[CatStronauts: Mission Moon](#)

This is the first book in a fun graphic novel series. In the books the world is entirely populated by cats. The books in the series are funny and the science is good too. Grades 2 - 5.



[13 Planets: The Latest View of the Solar System](#)

This is a really nice book, filled with science information and photos. If your child likes to read digestible amounts of science information, you do not need to look any further. I have written 2 astronomy courses and at this time I am planning out an astronomy class. When I want to check out a quick fact, I look first inside my copy of this book. It's concise and the voice is just right for the target age-range. Grades 3 - 7.

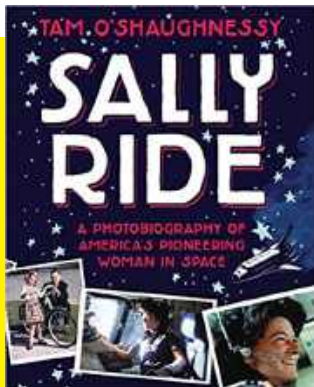
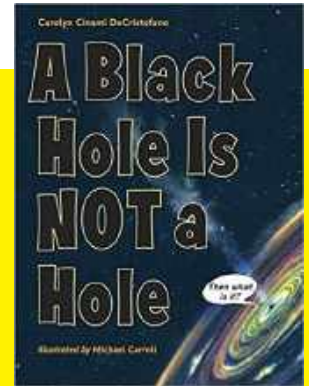


[Max Goes to Jupiter: A Science Adventure with Max the Dog](#)

This has an interesting format. Each 2-page spread has a sidebar with important scientific information, in this case about Jupiter. There is also fictional story about a dog Max and his family woven through the pages. Those use the information from the sidebars. I think a lot of kids will really enjoy this presentation where science information is presented in interesting, but textbook fashion, and then it is retold right away in a young person's voice. Grades 3 - 7 .

[A Black Hole Is Not a Hole](#)

This is a well written science book, with an excellent (not too technical) explanation about a fascinating science topic, black holes. There is also plenty of general science and astronomical information. If black holes are a topic either you or your children are interested in learning more about, this book will not disappoint. It has well-chosen photos and images woven throughout. Grades 3 - 7.



[Sally Ride: A Photobiography of America's Pioneering Woman in Space](#)

This inspiring biography of Sally Ride's life is told in words and photos. I think many kids will be drawn in

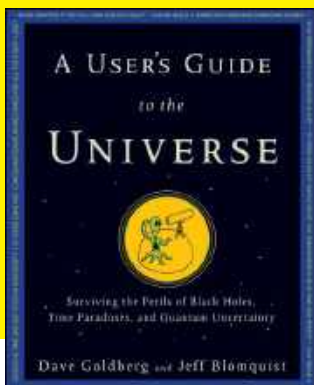
with this engaging format. Ride was a true hero. She did so much for the space program and for women. There is a nice mix of science in this story as well. Grades 3 - 7.



[Chasing Space Young Readers' Edition](#)

Chasing Space is the autobiography of Leland Melvin. Melvin has had an amazing life, and this well written story does not disappoint. Melvin has played football in the NFL, been an astronaut, written songs, and

worked with Serena Williams, to list just a few of his accomplishments. Grades 5 - 7.



[A User's Guide to the Universe: Surviving the Perils of Black Holes, Time Paradoxes, and Quantum Uncertainty](#)

This book is so good! It isn't really a children's book. But anyone interested in astronomy will find all sorts of fascinating facts and information in it. To top it off, the writers are funny. I recommend this for any one 10+ who wants all the facts.

Awesome Astronomy Documentaries



[Quest: Mankind's Journey into Space](#)

This documentary series chronicles mankind's fascination with space and space travel from the past to now to where we are going next.



[The Farthest - Voyager in Space](#)

If you have used *REAL Science Odyssey (RSO) Astronomy 1*, you probably already know that I LOVE the history of space travel. Much of RSO Astronomy 1 is told by a space dust bunny who hitched a ride on Voyager 2. This PBS documentary tells the story of Voyager beautifully. As you watch it, I bet you wish you were a dust bunny along for a ride through the solar system and beyond.



[Cosmos: A Spacetime Odyssey](#)

No list of astronomy documentaries would be complete without Cosmos on it. This series is exceptional!



NASA has its own [YouTube channel](#). On it you will find loads of videos and Livestream TV.



Then there are the [Hubble](#) & [James Webb](#) space telescopes. Both have their own YouTube Channels. The James Webb telescope is scheduled to launch in October 2021. When it does, it should see much farther than Hubble. Until then though, Hubble ... I get chills thinking about it. The



things that have been seen by Hubble are really incredible.



Hubble even has its own [IMAX documentary](#).



This is another great [Hubble documentary](#). I have seen them all. As to which I prefer they are both good. I recommend you watch the trailer for both and choose the one you think you will like most. LOL, can you tell how much I love Hubble? Here is another video about it. And in case you are wondering Star Trek or Star Wars, the answer is BOTH! & Voyager, Generations, and Deep Space 9.

Awesome Movies that have a Connection to Astronomy



[WALL-E](#) was my son's favorite movie for many years. Because of him I have watched this movie, many... many times. It is more of an Earth-focused environmental movie, but hey, the people are living on a space station, so it sort of counts.

[Treasure Planet](#) is an outer space adaptation of Robert Louis Stevenson's book *Treasure Island* and it is really good. With pirates, space ships and robots what's not to love!



[Ender's Game](#) is for a more mature audience than most of the rest of this list. It is a good movie based on the best-selling book with the same name.



[Guardians of the Galaxy](#) this series is so much fun. I LOVE how there are lots of humanoid aliens.

[Zathura](#) is like Jumanji except in space. It is really fun to watch!

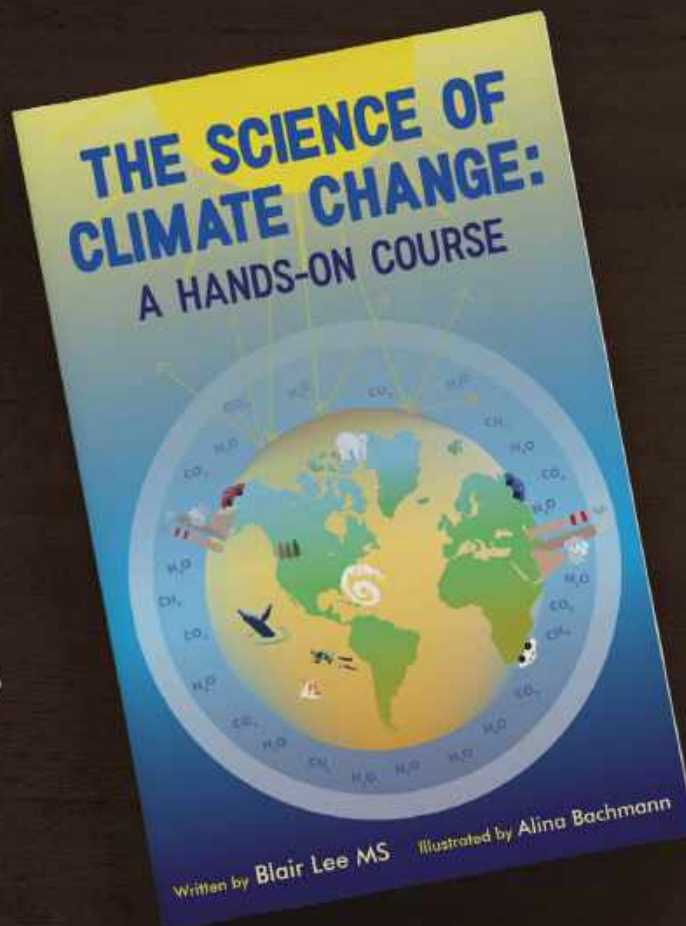


Star Wars & Star Trek no list would be complete without these two. Now that Disney+ has every Star Wars movie and animated series ever made, it is really easy to watch them all. As for Star Trek, you can get them on Amazon. I know because I own them all, and that is where I got mine. ;-)

Bio:

Whether she is watching the latest Star Wars movie, camping in a Dark Sky Place to better view an astral event, or reading from her extensive collection of astronomy-focused books, science educator and SEA Homeschoolers founder Blair Lee is fascinated by astronomy. "Staring up at the night sky and imagining what might be out there is one of life's great pleasures. It just expands your soul," says Blair. Blair is the author of [R.E.A.L. Science Odyssey Astronomy Level One](#), a course for Grades 1 – 4, and [R.E.A.L. Science Odyssey Astronomy Level Two](#), a course for Grades 5 – 9. She is also the author of [The Stargazer's Notebook](#), a book sure to engage stargazer's from ages 9 – 99! This fall, Blair will be teaching two online classes: [Topics in Astronomy](#) (part of the [Elementary Science Series](#)) and [The Stargazer's Club](#).

Learn What It Is, Why It Matters, and What You Can Do to Help



This School
Year Teach
Climate
Literacy



The Path Toward Science Literacy

By John Suchocki

**The article below is the transcript from a live workshop.*

Welcome to this workshop on science literacy. I'm excited to see so many of you here. My name is John Suchocki. (Pronounced: Sue-HOCK-ee). I'm a science professor and science textbook author. I thought I'd share this photo of a younger me in the studio where we began our adventure into the world of educational video production some 20 years ago. I've since grown up to become founder and CEO of Conceptual Academy, a Public Benefit Company with a mission of improving science literacy across the world, with a particular focus on high school and college students. Our premise is that students embrace video as a means of learning—actually more so than densely written paragraphs. [long pause] Unbelievable, right? [laughter]



We'll start this workshop with some definitions. We'll explore why science literacy is so important, especially in this modern age. We'll examine the pathways to science literacy. Then we'll conclude with a break-out session where we can discuss and apply the ideas in small groups.

Any questions? [pause] Very good. But please feel free to interrupt with your questions anytime during this presentation.

Being *literate* generally means being able to read. But reading is not something you learn how to do and then stop. [laughter] Reading is a life-long endeavor. So being literate also means being "well-read". And, yes, there are degrees of literacy. The more you read, the more literate you become and the more ideas you'll have percolating in that head of yours.

Throw in the word "science" and you have "science literacy". Someone who is scientifically literate understands enough science to help in their personal decisions, including as a consumer and as a citizen. It helps them in their daily lives. It also helps them in appreciating and valuing nature for what it is, not for what they might wish it to be. The more scientifically literate you are, the more your view of the world is connected to the reality of the physical universe and its many wonders.

So here we go. What do we mean by science? [pause] Yes, up front. [pointing]

Audience member: "Science is a world of logic. Where you apply logic to everything."

Thank you for that input. Indeed, following logic is an important component of doing science.

Like logic, science is a method of gaining knowledge. From that method we discover many facts and figures. The general public has come to associate science with those facts and figures. I think that's a fair association. But at the heart of

it, I see science not so much as a body of fact and figures, but as a powerful method by which you can learn those fact and figures.



Science is a tool for learning about the physical universe. But an especially powerful tool because it holds a built-in, self-correction mechanism. Whatever you discover or conclude is always subject to the rules of nature. And nature doesn't care if you're the richest person on the planet or the poorest. If you're off in your conclusions, even a little bit, then some other scientist will eventually be pointing that out.

Doing science is like playing poker with all cards facing up. One's honesty is always in check. Working *together* is natural. So we find science is a deeply communal activity involving many scientists, working together, with all cards facing up. Over many generations, science has played a key role in bringing us to the modern civilization we see today.

The general public should know that science employs not only logic, but also creativity and many other human traits all toward the goal of learning more about the physical universe. Then, as we learn more about this universe, we become better equipped to find our place within it. We become more empowered in our search for meaning. Science holds an important seat at the table of human endeavors.

Audience member: "I see science as being fun and engaging. But at the same time I also see it as intimidating."

Thank you for that comment. One of my favorite expressions is that "Science is a window through which we can see the natural universe with greater clarity." We should recognize that science is not the natural universe itself. Rather, it's a window that helps us to discern the natural universe. And guess what? The natural universe is rather complicated. And clearly, the natural universe can be rather intimidating. Maybe so intimidating that we, at times, would rather just close our eyes. Or maybe paint that metaphoric glass window with a pretty design. I would argue its not science that is intimidating so much as what science allows us to see.

We can think of science as an excellent pair of reading glasses. Then one day you look at yourself close up in the mirror with those reading glasses. The effects of aging on your face are suddenly crisp and clear. Hmm. I no longer look quite like I did in that photo I showed you earlier.

The goal of science is to see things as they are, not for how we might wish them to be. That's not always comfortable. So how does it help us? It helps us in our decision making. Decisions based upon objective investigation and accurate information tend to be better than decisions based upon ignorance or denial. That's the bottom line.

The Conceptual and Experiential

So, let's break it down. You don't have to be a science nerd to be scientifically literate. You don't need to know a ton of facts about the physical universe. Then what do you need? You need a modest foundation of the *conceptual* and the *experiential*. What do I mean by these terms?

First, conceptual means a focus on the basic concepts, on the core ideas. The motion

of the planets may appear complicated, but boil it all down and you've got the law of gravity. So, let's learn about that fundamental law of gravity. And then along the way, let's dig into some cool examples, like how an orbiting space ship is not free from gravity. Rather, the only reason it doesn't fall to the ground is because it's also moving sideways at about 17,500 miles per hour.

Audience member: "What about the math?"



Math is a very powerful tool. It's an essential handle for the many complexities that follow. But math is NOT the concept. Math is a *language* that describes the concept. If you want to dig into the many complexities, then the language of math is exceedingly helpful. But if your goal is to learn just the basic concepts, then plain English is the way to go. Actually, I would argue it's best to describe science concepts in plain English first for everyone, including those destined to become our future scientists and engineers.

After all, there you are with a loved one gazing upward at a deep blue sky when they ponder aloud: "Hmm, I wonder why the sky is blue." So why is the sky blue? Boil it all down and you'll find the reason is rather simple to understand. And it can be effectively described in English. These basic concepts provide a greater perspective on the natural universe in which we live. This is a reward in itself.

So, some one who is scientifically literate at a beginning level has a handle on the core concepts of science. Not all the core concepts, but a healthy number of them. If you don't know why the sky is blue, then perhaps you'll know the difference between a bacterium and a virus, and you'll know why an antibiotic is not effective at destroying any type of coronavirus.



Second on my list is the *experiential*, which probably goes without saying, but I'll say it. We learn by doing. Very much so. If learning lots of concepts is the goal, then the experiential is a perfect vehicle to help get you there.

A scientifically literate person has a positive experience of *exploring* the natural universe. They are comfortable, if not drawn into the experience of discovery. Working on a lab or some hands-on activity, is clearly experiential. But an interactive classroom or study group where students are explaining concepts to each other is also experiential. Is reading a textbook or watching a video experiential? Mentally, yes, very much so. However, it needs to be complemented by the physical as well as the social. This means going out into the world and interacting directly with nature and our fellow creatures of this planet.

While learning new concepts builds upon our perspective, actually experiencing those concepts builds upon our enrichment. The conceptual and the experiential are mutually reinforcing.

Break Out Session

Any questions? [pause] Thank you for your attention. I thought we might now add to the experiential by having a break out session.

I've got eight questions I think you'll find rather interesting. You'll see I have them printed out on these placards. In a moment I'll be asking you to form small groups of 4 to 5 people per group. Your group will be getting one of these

questions.

Here's the deal. You're not to be answering the question. Rather, I'd like to ask that you talk about the question itself. What comes up for you? On an intellectual level? On an emotional level? On any level? Does it bring back old memories? Does it spark anything in you? What questions might you have about the question? And then, if you must, as a last resort, go ahead and maybe take a stab at coming up with a decent explanation to the question. Any questions? [no questions as the audience begins to stir.]

Then here are the questions. [Questions posted on overhead]

Why is the sky blue?

If there's gravity in space, why are astronauts in orbit weightless?

Why are no two leaves truly identical?

How did humans protect themselves from dinosaurs?

How far away is the next nearest major galaxy?

How is it possible for a fish to drown?

What's inside a bubble of boiling water?

Does a nail weigh more, less, or the same after it rusts?

OK then, let's start by mixing ourselves up. Without speaking and as quietly as you can, sort yourselves by eye color.

[audience members stand, stretch, then move about randomly till they start to clump into groups of people with the same eye color. An initial confusion morphs into chuckles]

OK, now that we are sufficiently mixed,

form small groups of 4 or 5. You're allowed to talk again.

[audience members form groups. One placard is provided to each group. The room becomes loud with chatter. After about 5 minutes the discussions begin to die down]

Very good. Now let's stay in the same groups, but now go ahead and work on the next question in the list of questions shown in the overhead.



[discussions resume and then being to die down after another 5 minutes]

Very good. Now lets do one more. But this time you can pick your own question from the list.

[discussions resume and then begin to die down after another 5 minutes]

Excellent. Now I'd like to ask if anyone might be willing to share what was learned from your group. We'll take 3 or 4 comments. Please raise your hand if you'd like to share your observations. [Some hands go up]

Audience member: "Those are tough questions" [laughter] "but what occurred to us is that the question itself is almost as fascinating as any answer."

That's a wonderful observation. Clearly, quality questions are just as important as quality answers. Thank you for that. How about from this team here?

Another audience member: "It's like when you get the question, it's not just that you don't know the answer, it's like there's a world of background information that you realize you

might be missing. It's a bit embarrassing, actually."

Awesome comment. I was hoping some one would say something like that. In my mind, being scientifically literate means being comfortable with being uncomfortable. Or at least familiar and OK with being uncomfortable when it comes to not knowing. And realizing that one of the best answers ever is a simple and very honest: "I don't know". It's something even the most advanced scientists encounter routinely. There's always something they don't know. Eventually you realize, that the more you learn, the more there is to learn. Of course, this is not restricted to science. The same holds true for any human endeavor. The process of learning is a reward in itself.

By analogy, consider a movie. What makes for a good movie? It has a good story that unfolds. The unfolding of that story is everything. It's not enough just to know the ending. How we get to that ending matters dearly. The process brings it alive.

We're running short on time. Let's do one more comment. There in the back.

Audience member: "So, why is the sky blue? [laughter] You said it can be easily explained."

You're asking for a spoiler alert? [more laughter] Yes, the explanation is a beautiful thing. I wish we had time to go into that explanation. But this raises yet another question. How short or how long should the explanation be? How much detail suffices? Of course, how deep we go is a function of one's level of curiosity.

Audience member: "I'm really curious. Why is the sky blue?"

[long pause]

What a beautiful segue [laughter] to the main point I'm hoping you're able to take from this

workshop, which is the value of curiosity. To me, scientific literacy is an amazing booster to one's curiosity. But please consider, you can teach the conceptual with excellent explanations. You can teach the experiential by providing opportunities. The result is a more knowledgeable and hopefully wiser student. This is important. But how do you teach curiosity?

Nurturing Curiosity

The bad news is that you can't. The good news is that you don't have to. Of course, we are born naturally curious. It's within our DNA, if you will. But maintaining that curiosity can be quite the challenge. When you're hungry, scared, or not feeling safe. [pause] Well, fear is a powerful curiosity killer. Fear is helpful for other reasons, but not for supporting curiosity.

Let's bring it home: Think of the traditional penalty based exam or homework problem set. With such assessment techniques, fear of getting a wrong answer is the student's prime motivator. Any curiosity the student might have is pushed to the background. Fear and curiosity don't go well together.

Curiosity is not taught. It can only be nurtured. You nurture curiosity not so much by the answers a you give, but by the questions you ask. Key is that you ask these questions within a safe and relaxed environment.

I like to say that the best way to *learn* is to *teach*. If you really want to learn something, try teaching what you think you understand about that something to someone else. It's a highly efficient, and often humbling learning experience. OK. So if the best way to learn is to teach, then the best way to teach is to [long pause] listen. Here's the deal: When you ask a pretty cool question, in a safe and relaxed environment, you're setting

yourself up to be a listener. You're setting yourself up to be an expert teacher.



"Why is the sky blue?" you asked back to me. My round about answer is this: When we feel safe and relaxed, though maybe not too relaxed [laughter], then our curiosity has permission to bubble to the surface. We're open to putting forward our uncertainties and even our ignorance. We're being honest.

Not to wax too poetic, but that puts us in a good position to be responsible stewards of this shining blue planet, a jewel in the vast emptiness of space. "Why this? Why that? How do you know?" Responsible stewards are good critical thinkers. They ask these sorts of critical questions. The more, the better. Caring and curiosity go very well together.

So consider this. We are well over 7 billion in population. Creatures of our capabilities in such massive numbers has never happened before on this planet. We have become the strongest geologic force. And, of course, with great power comes great responsibility.

So how exactly are we to get along with each other and with the planet that sustains us? I would argue by focusing upon what we have in common, which are the rules of nature for what they are, not for what we might wish them to be.

Being literate means you have many ideas

percolating within your head. Being scientifically literate means you can discern which of those ideas are grounded in the reality of the physical world. You can discern which of those ideas are to be trusted to work in the real physical world.



At the same time, as humans, we may also be very artistic or spiritual. There is so much meaning in this universe still to be discovered. Science is one pathway. There are others. All pathways that lead us to greater meaning are to be valued.

But science, in particular, is rooted in something that we all have in common, which is the physical world. In this way, I see science literacy as a means of uniting us while still cherishing our differences. Not just across cultures, but across generations.

Out on a family walk a child asks: “Why is the sky blue and not some other color?”

The parent replies: “What a very interesting question. Do you have any ideas?”

Science literacy supports learning how to listen. Could the world use more of that today? I believe so.

We need clarity over wishful thinking. We need truth over denialism. We need to work together as responsible stewards. Ultimately, we need communities where we all feel safe—safe enough that our collective curiosity can be nurtured. If meaningful and sustainable living are what we seek, a strong understanding of our natural world is essential.

Thank you for your attention. I’d be happy to answer any questions you might have.

Epilogue



A tuning fork vibrates at a particular frequency, which is its natural frequency. No matter how hard you hit that tuning fork, it will still vibrate at its natural frequency. Air molecules, such as nitrogen, N_2 , and oxygen, O_2 , behave much like tiny little tuning forks. The natural frequency at which they tend to vibrate is about 6.5×10^{14} Hz, which corresponds to the blue frequencies of light. When they get hit by the Sun’s radiant energy, they start vibrating at their natural blue frequencies. Just as a tuning fork emits the sound of its natural frequency, these Sun-hit air molecules emit the light of their natural frequency, which is blue. As these air molecules vibrate, they send out blue light in all directions. That’s why the sky is blue, but only in the daytime. At night, there is no solar energy to cause them to vibrate, which is why the sky is dark in the nighttime. At high noon, the Sun appears yellow, in part, because the air between you and the Sun is sending the Sun’s blue light in other directions. Remove some blue light from the Sun’s spectrum and you’ll end up with a yellowish color. At sunset, the Sun’s light is passing through much more of the Earth’s atmosphere, which means even more blue is removed. That’s why sunsets tend to be orange to red. So then, why is the daytime sky on the Moon black? And why are the sunsets on Mars blue?



Sunset on Earth

Sunset on Mars

7 Tips for How to Handcraft a Secular, Eclectic, Academic Education

Written by Blair Lee



An Important Purpose of an Education should Be to Connect Learners with their Own Unique Intellect.

Like you, I understand the desire to guide your child so they can figure out what they want to do with their one wild and precious life. By handcrafting your child's education, you can help make that happen. That is because a handcrafted education honors the strengths, challenges, and passions of your learner. It connects your child with their unique intellect, with who they really are, empowering your child to become a lifelong learner.

I began trying to figure this out for my son when he was 5 years old. Here was the problem though: there were lots of resources that talked about the **why**. And they were compelling. But none that talked about the **how** for creating an eclectic handcrafted journey. So, I went looking for a community. I needed a secular academic community, and I was able to find that locally and online. But when I wanted a community that was also eclectic, I struggled to find one.

I found communities that were academic-focused, but the discussion wasn't about making the academics innovative. Others felt

innovative, but there wasn't much discussion about academics. I could not find a group where the discussion about learning focused on being innovative, but still academically-rich. So, I started SEA. The SEA community was an important part of my homeschooling journey. Facilitating learning, in a way that honors a child's unique intellect, works best when there is brainstorming, mentoring, and insight in the "how." This dynamic process happens regularly in our large Facebook group and through the many articles on the SEA magazine and SEA blog, written by authors with different and extensive expertise.

Even then, each child has distinctive needs and interests. So how do you handcraft that? You can get input from people about how they did it for their child. But how does that translate for your child? I am an experienced educator, and I was challenged with the how of handcrafting an education. So, I read everything I could find, and listened to every expert whose message resonated with me, as I worked at how to handcraft an education for my son to prepare him to be an adult in this rapidly changing world we live in.

Today, I am going to share my top 7 tips to help you with the how of handcrafting your child's journey through learning. These are the things I did to craft something innovative, learning-centered, and academically-rich for my son.

You might think I'm going to start by telling you about all the fantastic resources and programs. In fact, the first thing I recommend you do is to close your eyes. Imagine what you envisioned when you decided that you were going to homeschool your child. Even if you are a crisis homeschooler, take the time to envision what a tailored learning experience could look like. Now,

hold on to this vision while working through the first tip.

Tip #1: Document Your Why with a Mission Statement

The first step in handcrafting an education is to write a mission statement. This is something every homeschooler should do, no matter how long they have been homeschooling. Being clear on why you are homeschooling will keep you grounded and on track. Your Mission Statement can be used as a guide in moments of indecision. It also helps you when choosing between options and paths. And the more innovative and eclectic you are, the more options and possibilities you have to look at, it can be overwhelming. A well-crafted Mission Statement acts as a compass. It sets boundaries and provides clarity and direction. It functions a guidepost when you feel scattered or overwhelmed.

[Crafting Your Mission Statement: Free Download](#)

Tip #2: Focus on Best Learning Practices instead of Best Teaching Practices

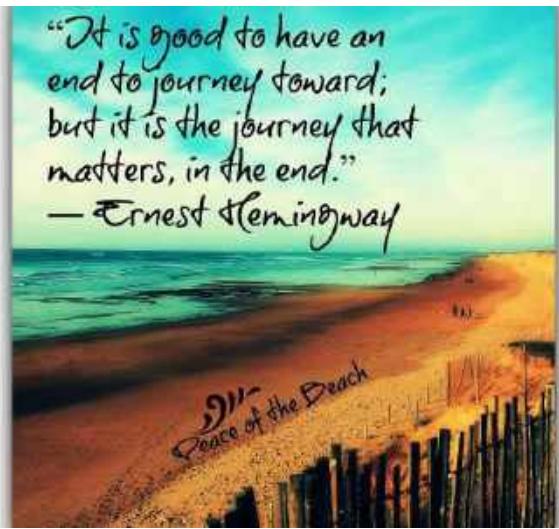
A critical first step to handcrafting your child's education is to make it learner-centered in a way that connects them with their own unique intellect. To do this you need to consciously make a paradigm shift away from focusing on Best Teaching practices to Best Learning practices. This can take a bit of work and thinking as you refocus on how your child learns best. Do not spend too much time focused on what worked best for you personally, another child, or in a classroom setting. This is about how this one, unique child learns best.

Let's say your child is a strong kinesthetic learner. That is important to identify for two

reasons. First, not all learning environments lend themselves to kinesthetic learning. This makes it important to work on other learning modalities for your child. You can do this by taking those subjects your child finds easy and use materials and approaches that do not include much of a kinesthetic component. In that way, your child will be working on strengthening their audio and visual learning skills. Secondly, for those subjects your child finds challenging you will want to make sure there is a strong kinesthetic approach. That way, the focus is entirely on the subject and not how well your child is accessing it. If you are new to homeschooling, it might take you a little bit of time to figure this out. Just pay attention, and with some observation it is usually pretty obvious how a child learns best. Another issue to pay attention to is the learning medium: videos, live online, in-person, using print books, or group discussion. Many people learn best using one, or a combination, of these. If you care about your child learning a subject, and they do not learn best from a pre-recorded video, for example, then you will not want to use this, even though it may be easiest on you and your pocketbook.

A part of this refocusing on learning is to shift your thinking from treating education as a ticket to focusing on the journey through learning. The ticket mentality is an easy trap to fall into. Almost every parent, teacher, and homeschooler does this at one time or another. For example, when we say something like, "If you don't learn multiplication you can't advance to fourth grade math" multiplication is being treated as the ticket to fourth grade. In reality, multiplication is a useful skill and should be learned for that reason.

Learning, whether it's multiplication or something more arcane, should be treated as if the point, purpose, and beauty of it is as an essential part of each person's life journey.



Tip #3: Learn about Different Methodologies

Familiarize yourself with the different learning methodologies. All methodologies have their strengths and weaknesses. What those are varies depending on the student and subject. The methods that work best generally change, as well, as children get older.

A common issue for homeschooling parents occurs when they become attached to a method, because they feel a personal connection to it. Just remember, the acquisition of knowledge is more important than the method used to acquire it. It can require some finesse and reflection to have that separation, but it is important for an important component when crafting a learning experience that honors the learner. Most learners benefit from a mix of methods, an eclectic approach.

“Learning, whether it’s multiplication or something more arcane, should be treated as if the point, purpose, and beauty of it is as an essential part of each person’s life journey.”

Tip #4: Form a Partnership with Your Child

Form a partnership by having a dialogue with your child. This is their journey. Your child should be included in the discussion even if the approach that works best is very top-down. Ask them to help choose resources, topics, and even methods of learning. It might take a while for your child to really understand that they have a say in this, but eventually it will pay off and they will realize this is a partnership. Once that happens, your child will feel ownership over their learning, which is empowering. You can see how beneficial this is for creating lifelong learners.





Form a Partnership with Your Child

Tip #5: Start with a Liberal Arts Education

We spend most of our life as an adult. In order for an adult to get to do what they want with their one wild and precious life, it's important that their education prepares them for the rapidly changing world they live in, and an education does that. A handcrafted education should be innovative, organic, and academically-rich where subjects are learned in a meaningful and applied way. By handcrafting an education that includes core academics you are ensuring that your child will have the necessary academic skills needed when reaching adulthood.

We are in a time of profound change with social constructs and institutions being pushed to make much-needed changes. A huge benefit of handcrafting your child's education is that you can handcraft something that reflects the current state of information. This is best done using a Liberal Arts framework including and tweaking topics to craft an education that is unique and relevant. Include the history of now, civics, microbiology, and climate literacy, basically whatever issues you feel are essential to a modern education can be elements in a handcrafted education. All subjects easily fit into a liberal arts framework that prepares students for adulthood in our rapidly changing world.



You Can Include the History of Now!

Tip #6: Use good curriculum and resources

Use curriculum and resources written by someone who is an expert in an area. From the perspective of academics, it's important that the person presenting the information knows what they're talking about, what essential knowledge for a subject area is, and how all the pieces fit together. You should consider these guides for what to teach and when to teach it. There is a lot of planning and many, many hours that go into good online classes, written curriculum, and other resources. This is planning you can trust that you don't have to do.

Tip #7: In Pursuit of Passions

Take the time to fall down rabbit holes. Don't stress about the days your child decides they need to learn everything there is to know about black holes, or when they decided that the entire month of November is going to be taken up with NaNoWriMo, also known as the national novel writing month! These are important milestones in empowering your child to be a lifelong learner.

A handcrafted education focuses on the strengths, challenges, and passions of the

individual. Time is the money of life, and it is important some of the money of your child's life is spent learning things that matter to them. Pursuing passions can create a love of learning and encourage uniqueness. A very solid approach when pursuing passions is to use a project-based learning approach. With project-based learning there is a hands-on approach to academic knowledge and skills in a way that is personally meaningful and has real world applications.

Your unique skills, strengths, and passions are something special to share, too. So, don't forget to pursue your own passions! Your child might not care enough about night sky watching to ask to get up at 2 am for every meteor shower that occurs over a 2-year period. But they will never forget the 2-years when they did just that, because of how much you cared.



Your Passions Are Important, Too.

[Pursuing Passions Worksheet: Free Download](#)

Close your eyes again. Think of your child as a happy, healthy adult who is connected to themselves as a lifelong learner - Someone who feels plugged in - Someone who understands the value of their unique intellect. Now imagine this happened in part because of the education you handcrafted for them.

Bio:

Blair Lee, M.S., is an educator, curriculum developer, scientist, writer, and speaker. She is a passionate advocate of innovative academics where the focus is on how subjects are best learned. Through her speaking and writing, her goal is to empower educators to dare to be innovative and create something unique and academically-rich when handcrafting their students' education. Blair Lee, MS is the founder of Secular, Eclectic, Academic Homeschoolers and SEA Books & More.

Blair earned Bachelor's degree in Chemistry & Biology and a Master's degree in Chemistry at the University of California San Diego. She is the author of *The Science of Climate Change: A Hands-On Course*, the primary author for the critically acclaimed REAL Science Odyssey Series, co-author of *Project-Based Learning: Creating a Modern Education of Curiosity, Innovation, and Impact*, and *What is Magic? An Unofficial Exploration of Harry Potter and the Sorcerer's Stone*, which is the first in a series of project-based learning centered book studies.. She has been involved in science education for over two decades, first as a community college professor and secondly as a curriculum developer. Blair writes concept-rich, hands-on courses that include mainstream science presenting the accepted facts, theories, and models as would be recommended by the majority of practicing experts in each field of science. This fall, Blair will begin teaching again through SEA online classes at SEA Online Classes. You can check her course offering out at [SEA Online Classes](#).



HSC HOMESCHOOL CONFERENCE

More than just a conference - it's a celebration!

Join us August 6-9, 2020 [Now Happening Online](#)

HSC's annual conference is a place to explore, relax, learn and find time to meet with new friends. It's a place where everything you need to know about homeschooling is under one roof, with activities for all ages, for an entire weekend!

Keynote Speaker: Elissa Berrol, a certified Brené Brown facilitator.

It is so much easier for children to learn when we feel welcome and whole at home and in our HSC Homeschooling Community. So with keeping community building in mind and with helping us to be our best selves for our children and for each other, Elissa brings a wealth of information on creating shame-free space to learn and grow.

Keynote Speaker: Saira Siddiqui is a freelance writer/parent educator.

She is a fierce advocate of critical thinking, anti-bias, self-directed education (unschooling), and stronger emotional health for parents and children. Thousands of families have benefitted from her teachings through courses, articles, and her blog, Confessions of a Muslim Mom.

Learn more about HSC Conference and our other speakers and workshops at [HSC.Org/conference](https://www.hsc.org/conference)



The Importance of Teen Programs at Conferences

Written by Dawn Holtan

The Homeschool Association of California (known colloquially as “HSC”) hosts an annual conference every summer. The HSC Conference brings homeschooling families together from all over California and across the US, and includes a full teen conference program. For the teens in our midst, it is often one of the highlights of their year.

The HSC Teen Conference programming is unique. All of our workshops and events are planned by a committee of hardworking teens for their fellow homeschooling teens, and the offerings are wildly creative. Games of Assassin that span the duration of Conference, themed casino nights, pool parties, DJ dances, LGBTQ+ meetups, video and card game tournaments, crafting activities, game shows brought to life... our teen conference always has something for everyone.

Of course, if you ask the teens what they value most about the Conference experience, most of them will mention the events only in passing. For them, Conference is about connection. It’s an opportunity to see friends they haven’t seen since last year, to meet new people, to put a face to a Discord user name, and to have lots of time together. What matters most to our teens is often the unstructured time they spend wandering around the hotel, talking and laughing together, and their late-night conversations, away from younger siblings and prying parents. This time to just be together, face-to-face, is everything for them.

Being a homeschooling teen isn't always easy. For teens in many homeschooling communities, weekly park-day socializing is a thing of the past, and it's common for their friends to disappear to high school. As homeschooling parents of younger kids, we all know that “what about socialization?” is a ridiculous question. For teenagers, however, finding their peers and having time to connect with them can become a real challenge--one that parents can't swoop in and solve. Conference, for one long, glorious weekend, provides homeschooling teens with tangible connections to their peers.

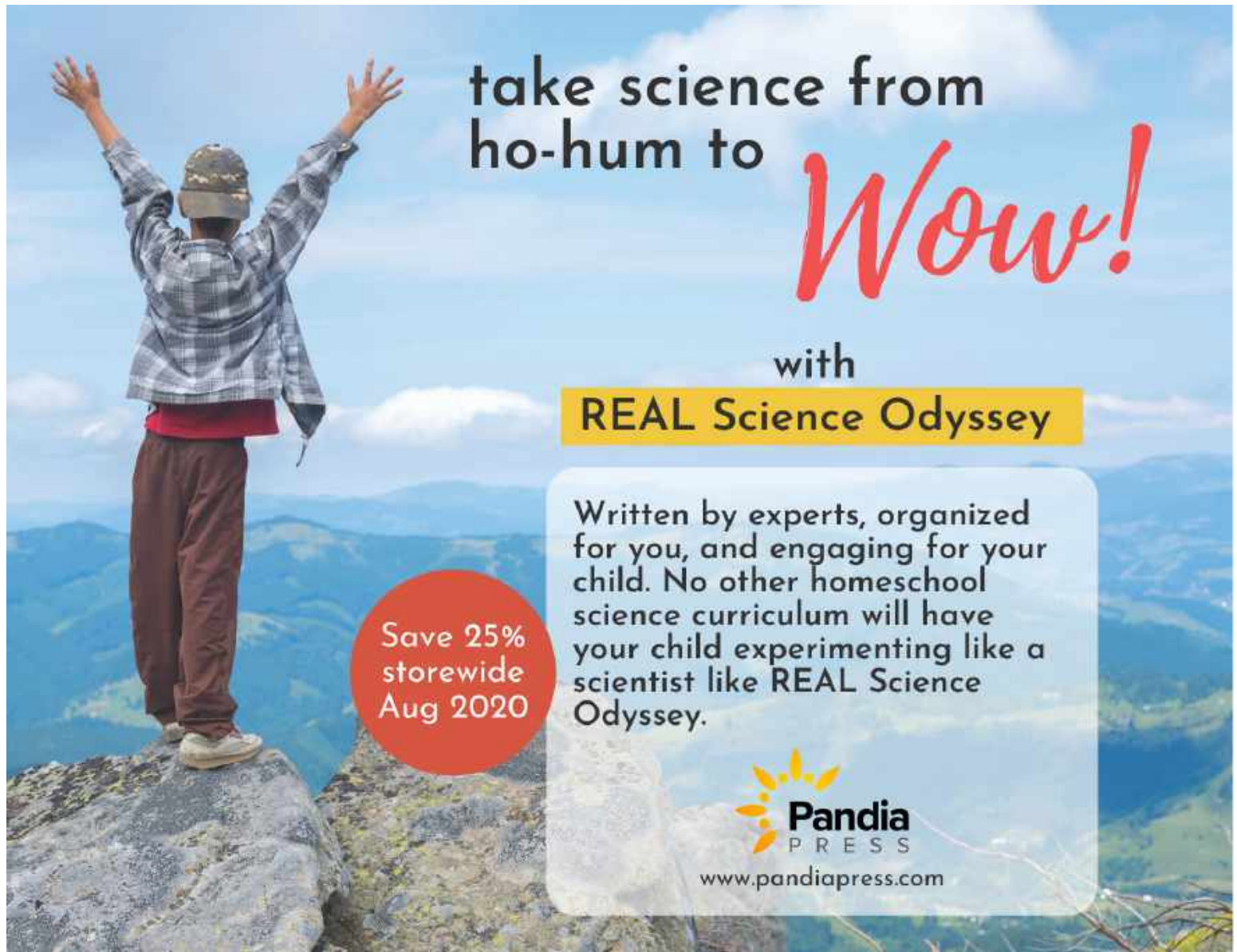
If you are interested in organizing a teen conference, or a teen programming component for a homeschool conference in your area, start by talking to your local teens. Working with the HSC Teen Conference Committee has shown me that our teens know what their peers want. Our teens know how to brainstorm creative ideas for events and workshops. They know how to do the creative prep work required to make their events happen. They know how to market the Teen Conference online. And they know how to show up and bring their ideas to life at our Conference.

If you are going to create a teen committee to plan and execute a teen conference, I recommend pulling together a group of teens with diverse skills and experience. You'll want creative, playful teens to brainstorm ideas (in my experience, they all love this part of the work). You'll also need teens with artistic crafting skills to create the decorations and 'props' for your events, teens with writing skills to craft the descriptions that will go into your conference

brochure, teens with social media savvy to get the word out, teens with acting and public speaking experience to be your presenters and workshop leaders, and friendly, social teens to create a welcoming, inclusive environment.

Once you have your team, it's time to step back and be their support person. The work that I do to support our Teen Conference Committee is focused on facilitation, organization, prioritization, and friendly reminders to stay focused. They don't need or want to be told what to do, or how to do it, but they do appreciate my encouragement, my help staying on-task, and the simple structural support I provide in terms of laying out budgets, schedules, and agendas for our meetings.

This year, COVID-19 is changing everything. We don't yet know whether we will actually have an in-person Conference. Our Teen Conference Committee is currently planning two conferences: version one is like all the Conferences that have come before, with extra hand sanitizer, a red-carpet dance, a pool party, a space-themed casino night, and much, much more; and version two is an online Conference, still in the brainstorming phase. We started the year planning like we always do, coming together for in-person weekend meetings in January and February. Now, our meetings are on Zoom. The difference in energy and enthusiasm is palpable; we all miss meeting face-to-face. The simple truth is that human beings crave connection, and for our teens, these




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opportunities to connect with their peers in-person are crucial to their wellbeing.

Facing the possible loss of our in-person Conference this year shines a spotlight on the role that our Conference usually plays in the lives of so many homeschooling teens. As tech-savvy homeschoolers, our Teen Conference Committee members are very familiar with all of the online options we have available, and their ideas for a virtual Conference are every bit as creative and inspired as their ideas for our regular Conference. The big difference is simply that our Conference has always been

about connecting with people in person. If we have to go virtual for the HSC Teen Conference this summer, the gift of face-to-face time with their peers will be sorely missed by all of the teens.

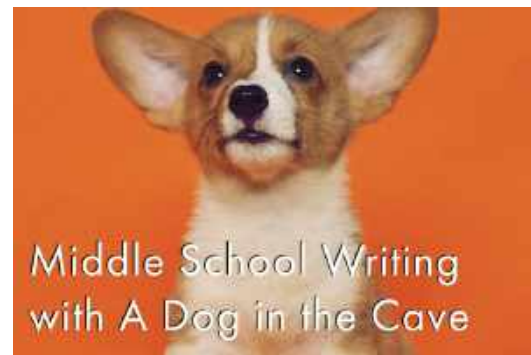
**As of publication, the HSC conference has indeed gone virtual. You can find out more about the teen virtual conference by visiting hsconference.org*

Bio:

Dawn Holtan is the HSC Teen Conference Coordinator. She facilitates the planning and execution of the annual HSC Teen Conference with the Teen Conference Committee, a group of dedicated homeschooling teens. Dawn has been happily unschooling each of her own children (13, 16, and 20) since they were born.

Looking for meaningful, project-focused online classes?

SEA Online Classes offers courses designed and delivered by passionate educators who want to help learners reach their own goals. There is no one-size-fits-all education, so our classes are designed with flexibility in mind. Learners do best when they're excited, interested, and supported. Our classes provide hands-on experiences that put the principles of learning at the center.



Welcoming Diversity

Written by Jocelyn Cooper, HSC Conference Coordinator, hsconference.com

We've all heard about diversity and increasing diversity. But what does it really mean? Is it about having people of color (POC) in your group? Is it about reading about diverse cultures? Is it about attending events hosted by POC? Well, yes. But if you only did one of these things, you'd be missing 2 crucial and pivotal pieces -- having a quorum of diversity and welcoming not just the person, but also the vantage points, which arise from cultural experiences.

Having a variety of types of people brings new perspectives. It can enhance creativity and add new perspectives that allow groups to become more dynamic and engaging. There is a lot of science that speaks to advantages of group success when all vantage points are considered. Biases are lowered and innovation increases.

In the 2016 movie "Where to Invade Next", there is a scene in Iceland about representation of women:

"Research has shown us, and this is international research, that once you have three women in the boardroom, that's when culture starts changing, not when you have one or two. Because one is a token, and 2 is a minority, but once you have 3, it all of a sudden changes the group dynamics. It changes how the dialogue is taken, what is discussed. And it has been well shown that that goes beyond that the balance sheet when you have more women around the table. They start asking more about all stakeholders.

This is what I call a different moral and ethical compass, and I think this is extremely valuable today. And I think you can't actually survive in business without doing this today... where women [have] power, people [are] simply better off."

The same is true for including people of color. There is just no way to have only one person represent an entire population of people. You are better able to understand more nuance when you have a quorum of representation. This means that all important agenda items for POC and for White folks can be addressed and not slip through the cracks. And if you don't include all people's important agenda items, then you are silencing a portion of the group that you claim to say is important. It's lip service without due consideration.

Another thing that needs to be welcomed is not just having the person included, but their ideas and cultures. This doesn't mean that the controlling culture and ideas have to be thrown out with the bath water. It just means adding to them. Figuratively speaking, you wouldn't eat hamburgers every day of your life. You might add other cuisines. This doesn't mean you like hamburgers less; you're just adding variety to your world. This can be fun and delicious.

I belong to an organization that was "welcoming" to all people. Well, the people were indeed welcome, but as soon as they wanted to bring their music, shocked faces appeared. Is it truly welcoming if people can only bring their superficial self, but once they bring their culture, they're discounted? I don't think so. After some discussion, and after folks

attended a seminar about incorporating a wider approach to music, more people began to feel welcome and considered. Welcoming people takes thoughtfulness, and that is achievable. Let welcoming people's whole selves be part of the fun of discovery.

Make no assumptions. It's easy to think everybody does things the same way. Just because you have done things the same for years, doesn't mean that there's only one right way to do things. I used to live in Puerto Rico. Culturally, in the mainland US, it's typically

into our lives.

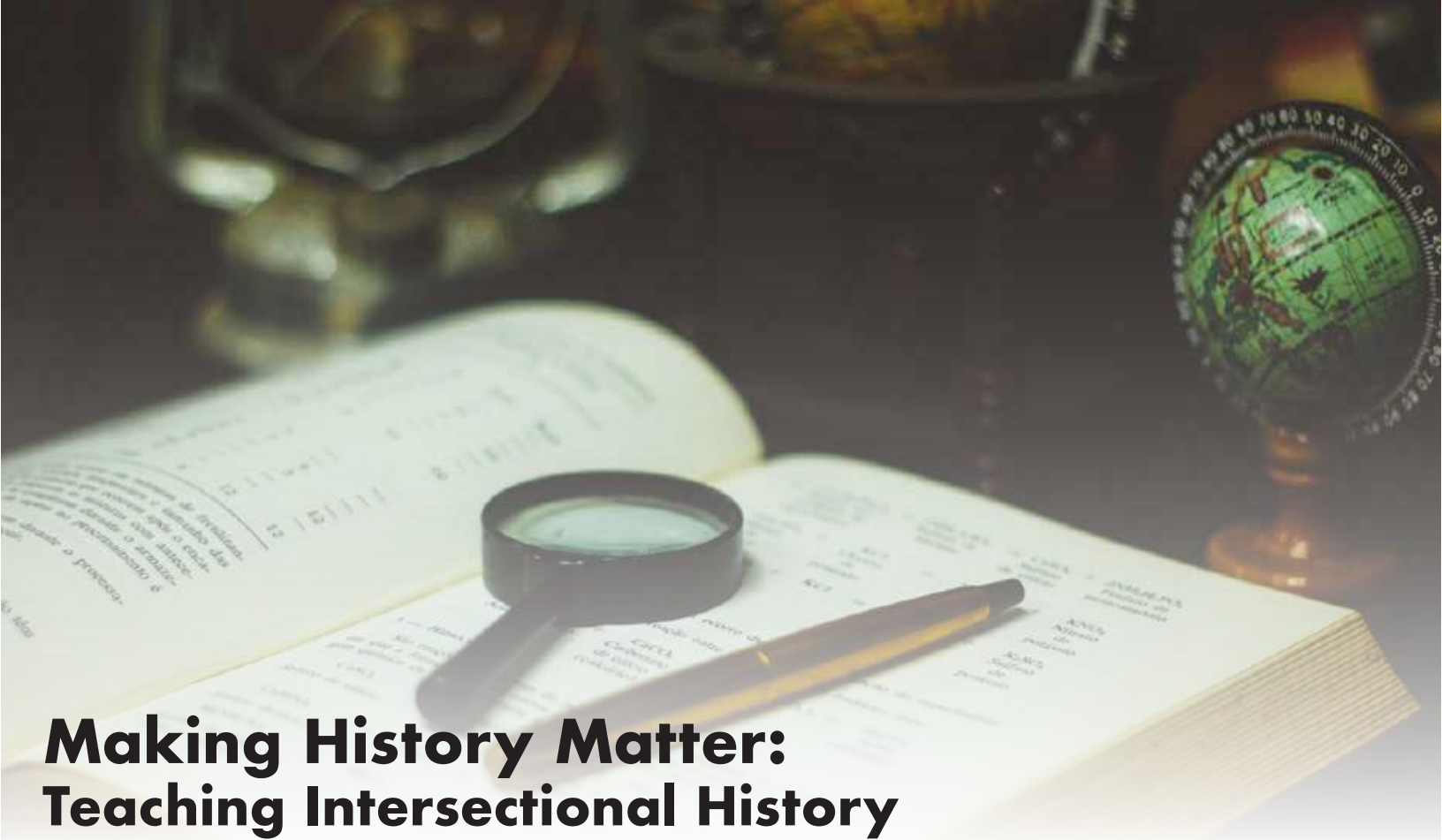
There are a lot of cultural differences like this that are not bad, just different from what you expected. POC have been having to learn about White culture all of their lives. Nothing wrong with that, it's just that when it is one way and not the other, it's easy for POC to be disenfranchised. Again, make no assumptions. Expect time to adjust to change; take some time to research different cultures; and know that you and everyone will be enriched for doing so. And, most of all, have fun with it!



business before pleasure. That works here just fine. But, in Puerto Rico, it's pleasure before business. At first, it felt like nothing could get done. We were at an impasse. But when I learned that pleasure is before business is because people want to get to know you, and to see whether or not it's a good fit so it can become a permanent business relationship, it helped me enjoy the ride. Though this approach was different, it allowed for tremendous ease once business started. It was like having team building beforehand. Different for me, at first, but oh so fun once I understood. By asking questions and not making assumptions, we can incorporate a lot of enhancing, new experiences

Bio:

Jocelyn Cooper is the Homeschool Association of California (HSC) Conference coordinator. She and her husband, Martin, live in Orange County and have 3 homeschooled children, 2 young adults and 1 teenager, plus and a spunky dog named Alf. She was introduced to homeschooling in 1993 when she saw a TV news segment about a homeschooling family of 5 who bicycled together across the US and met all 50 governors. She was instantly hooked by the thought of having fun with her kids as they learned. Jocelyn has run summer camps and has spoken at homeschooling conferences across the country. She looks forward to continuing to build community and share in the joy of homeschooling.



Making History Matter: Teaching Intersectional History

By Samantha Matalone Cook, MAT

Intersectionality is a term that was coined in 1989 by law professor Kimberlé Crenshaw that explains how systems of privilege and oppression overlap and the complexity of living at the intersections of those systems. Let's take a look at what intersectional history is, how it contributes to social change, how to build young historians who help to change our understanding of history, and some strategies for teaching intersectional history.

What is intersectional history and why is it important?

Intersectional history is the study of the past through the lens of social and political discrimination in organizations and systems over time and how they overlap and intersect in multiple, complex ways with gender, race, class, or sexual identity. For example, if we were to examine the history of industry, we would see

a wage gap between men and women, due to law (or absence of law), societal attitudes and expectations, targeted oppression, organizational power and more. In addition to all these factors, we would find that most women of color were historically more affected by this wage gap because of their race and, in many cases, socioeconomic status. This intersection of gender, race, education, and income in relationship to industrial power, privilege, and control reveals a much more comprehensive and realistic view of why a wage gap existed historically, why it still exists, and how it has impacted some women and their families more than others. Teaching history from an intersectional perspective matters. It allows for a more holistic and truthful study of our past. Understanding and teaching this history is instrumental to dismantling existing oppression and encouraging social change. Any history that does not take intersectionality into account is limited and exclusionary.



The Gender Pay Gap Visualized

Gender pay gaps and equal pay days for different races and ethnicities in the U.S.

For every dollar white, non-Hispanic men earned in 2018, women were paid...



To earn what white, non-Hispanic men earned in 2018, they would have to work until...



* compared to men overall
 Based on median annual earnings of full-time, year-round workers
 Sources: National Women's Law Center, Wikimedia Commons



The Statistics Portal
www.statista.com

This chart based on statistics from the National Women's Law Center (and verified by other sources) shows the disparity of wage from information collected in 2018. Charts do not tell an entire story, however. If we are to examine this issue with an intersectional lens, a chart like this would be a jumping off point or provocation to further research.

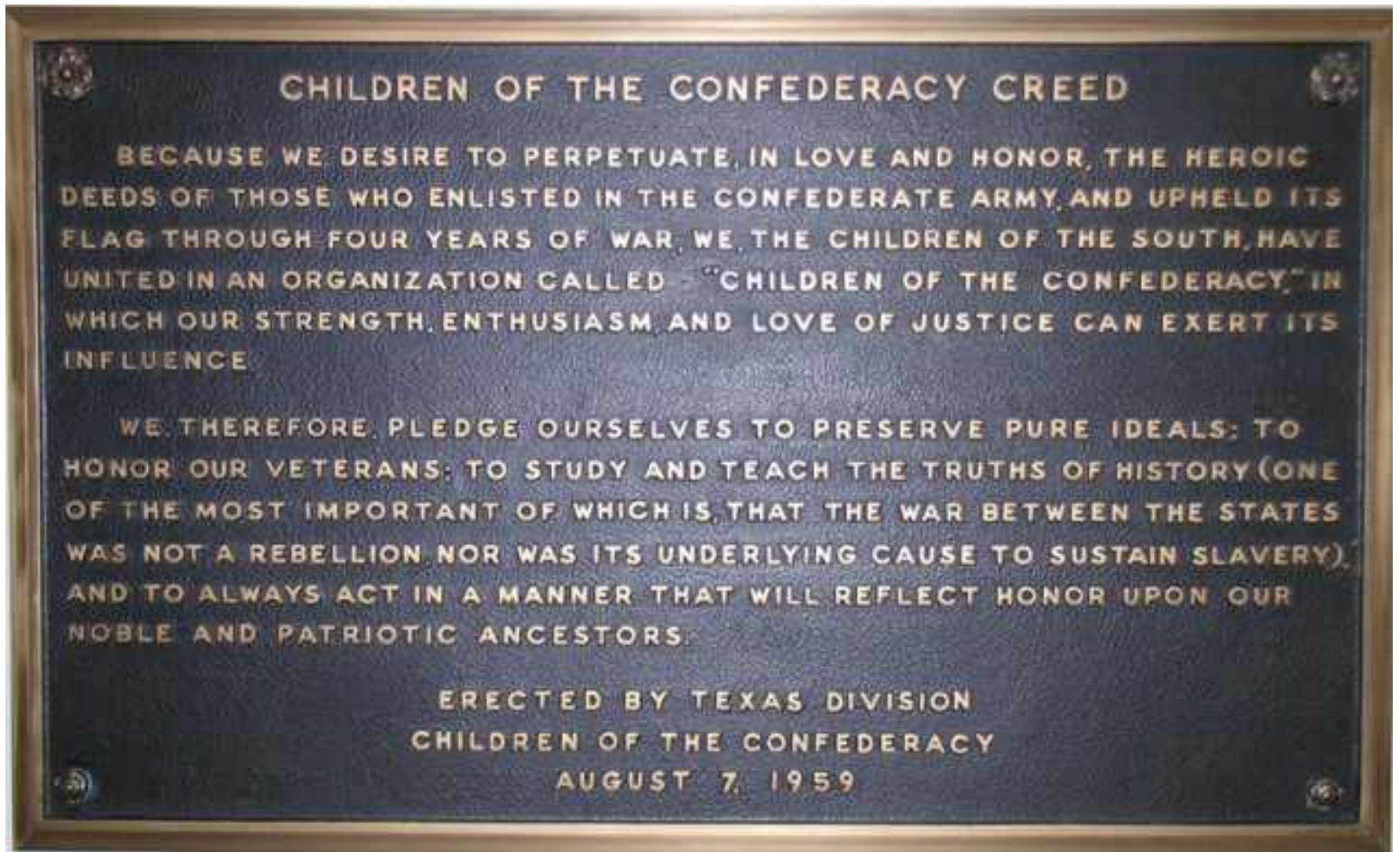
Why is it important for students to learn how to be historians? And what is Historiography?

The word "historiography" refers to the study of the methods, techniques, approach to sources and evidence, and research that historians use to develop the story of history. Studying history like a historian exposes students to the concept that the way history has been researched and written has and can change over time. By mentoring a new generation of historians who are cognizant that the way history is told can impact society, we can continue to contribute to an evolving body of work that is more inclusive and truthful which, in turn, has academic and social impact.

How can studying intersectional history contribute to social change?

The study of intersectional history can offer diverse voices and perspectives, especially those not traditionally included in euro-centric or white-washed history, painting a much more authentic and holistic view of events, ideas, and people. Artist and author Maya Gonzalez, says "children should not long for their own image" and she's right. We all need to see reflections of ourselves in history and we also need to see the reflections of others. This combination of self-reflection and exposure to a broader range of experiences is the first step towards building empathy, compassion, and community.

The study of intersectional history promotes



The Southern States notoriously sought to write their own version of history after the Civil War, erecting monuments and altering school textbooks in attempt to influence historiography and education. Some of these alterations are still being challenged by historians and the public even today.

social equity and community engagement. In particular, it connects us and makes us a part of our neighborhoods, which have their own social and cultural histories. Engaging in the commitment to re-telling and preserving the local past creates a commitment to the people who live around us and encourages us to look for and promote ways in which we can be more equitable in our daily lives.

The study of intersectional history can also inform ways of reparation and restitution for both historical and current acts of violence, genocide, and injustice. When we can identify and acknowledge the connections between power and oppression, control and cruelty, we gain more knowledge and skills that we can use to protect those who are marginalized or in danger and we can take responsibility with actions that show,

not just verbalize, our commitment to atone for past wrongdoing.

Finally, by studying intersectional history, we can see the ways in which industry and economy have been built on platforms of bigotry and oppression. We can influence social entrepreneurship, technology, and innovation to adapt and accommodate a much broader range of needs that take into account equity and justice, as well as cultural relevance and preference.

When studying history/social studies, should people primarily focus on current events, or use a standard, chronological approach?

This is something a lot of people feel conflicted or confused about. Students should absolutely



examine current events from a multidisciplinary point of view; that is, how is what is happening right now related to history, science, etc.? The immediate relevance, and sometimes call to action, is important to young people who need to feel informed and empowered. But we shouldn't discount studying history in a more traditional, chronological way. There are many ways to study history: thematically, topically, regionally—but every student should study world history, and the history of their country, at least once chronologically. Not only does this method offer perspective and context, but students are much more able to see patterns and cycles when they look at history from beginning to now.

It is always important, however, to connect past and current events in an intersectional way to whatever time period you are examining so students can see the relevance and value of studying history. For example, students need the context of the Black experience in the United States over the last 400 years to understand the Black Lives Matter movement today. They need the history of North American indigenous people and how each of the over 500 distinctive tribes have been treated by the U.S. government over centuries in order to comprehend the current protests and calls for action in regards to missing indigenous women or water and land rights. Students should study the history of deforestation

issues, such as those of the Roman Empire or the Industrial Revolution, when tackling solutions to the current problem of deforestation in places like Brazil or the larger global climate crisis. History matters to now.

What are some other strategies for studying intersectional history?

Solid research and study of intersectional history starts with sources. We shift the narrative by focusing on primary sources (documents, artifacts, etc. that were made during the time period we are studying) and secondary sources (books, films, etc. that analyze or interpret a topic, often using primary sources) that are credible and diverse. When they are looking at a source, students should ask questions like:

When, why, and where was this source created?

Who was this source created for?

What historical events could have influenced its creation or its meaning?

What perspectives are included?

Who does this narrative benefit?

Whose voices are missing? How might they tell this story?

What connections can be made to our current time period?

What can we learn from this?

Why is it important to know this?

What information do I need to find next?

Students should also look at the topics, events, and people they are studying with an intersectional lens. Looking at how power and oppression influenced decisions and actions in

history reveals that history doesn't just happen randomly. When they are studying a specific time period, students should ask questions like:

Who benefitted from the events in this time period?

Who had the most power in this time period and why?

From the labor of whom did those in power benefit?

Who benefitted the least from the events in this time period?

Who had the least amount of power in this time period and why?

How did race, gender, class, or sexual identity affect those in power? Those who were oppressed? Those involved in major events? The everyday life of ordinary people?

Have I collected the perspective of every possible voice in this time period? What do these narratives have in common? Where do they conflict?

Where can I see these stories in current events?

Finally, students should learn to write about history and develop history-focused projects based on intersectionality. With credible, diverse sources, research, analysis, and critique using an intersectional lens will result in papers and projects that reflect a student's comprehensive understanding of the past. This awareness of complexity and reality not only changes the way they see history and its impact on the present, but influences their contribution to social engagement and change.

History matters. The way we tell our collective history matters. By committing to a more inclusive, intersectional, truthful perspective, we show that the voices of the past, in particular those that have been previously silenced, matter.

Bio:

Samantha Matalone Cook, MAT, is an educator, historian, writer, maker, and speaker. She has almost three decades of experience in education, program development, and the arts and has worked with both small and large organizations to create educational programming that centers and connects the learner to concepts and skills. She has taught in classrooms and in private workshops, mentored other educators, and worked for and with many museums including the Smithsonian.

Samantha co-authored the book *Project-Based Learning: Creating a Modern Education of Curiosity, Innovation, and Impact*, and *What is Magic? An Unofficial Exploration of Harry Potter and the Sorcerer's Stone*, which is the first in a series of project-based learning centered book studies. She is now working on a multi-disciplinary Ancient History curriculum, which is the first of a four part series for Pandia Press' History Odyssey (Level 2), with a companion curriculum designed to build students' skills in historical research and writing. Samantha will be teaching a Research Bootcamp this summer and two history courses this fall for SEA Online Classes. She also finds new adventures and manages mischief every day with her two teens and one preteen, all home educated; the oldest of whom has recently fledged into college. You can learn more and connect with Samantha at: www.samanthamatalonecook.com

Check out this perfect pairing from SEA Online Classes! Human Origins and Human Hereditary have overlapping concepts, so educators Samantha Matalone Cook and Blair Lee have coordinated on their class schedule to connect these two courses, offering a SHTEAM, project-based opportunity for high school students interested in human evolution and the human story! Human Origins with Samantha Matalone Cook will focus on the history and human story of our early ancestors while Human Hereditary is a high school level life science lab class covering the science behind our human genetics. A great class bundle for any students excited about this subject!

Human Hereditary is a 16-week class that begins in September. With the addition of the 8 labs this course counts toward life science lab course for high school credit.



Many history books leave out prehistory (the time before written records), but the study of human evolution is essential to understanding how we became capable of everything that followed.

In this class, students will explore how our prehistory sets the stage for how humans adapted to their environments and formed communities before the Agricultural Revolution, when humans began building villages and farming their food source.

Has there ever been a time when it felt more important to understand Human Genetics?

This high-interest course introduces the principles and applications of human heredity, AKA human genetics. In addition to human genetics, student will accrue general knowledge about genetics and the evolution of all organisms. The first three weeks of this class will focus on general principles of genetics. After that, students will build on this knowledge as they apply those principles in a pertinent and meaningful way as they learn about human heredity and genetics.





Worldschooling, Our Journey & the Importance of Community

By Miro Siegel

...imagine discovering that the entire world is a learning opportunity, an infinite classroom brimming with an expansive supply of inspiration to learn from.

...imagine deciding this is something you want for yourself and your family.

...imagine a community of people who value experiential learning, development of personal and global awareness, practicing patience, being mindful of diversity and practicing compassion.

...imagine the freedom to problem solve in real world situations, apply creativity, feel empowerment, practice leadership and be present in your own life and in the life of your children.

...imagine feeling safe in the world and providing a sense of global citizenship for yourself and your family.

This is Worldschooling.

Worldschooling is magic. Our projects like the Project World School, the Project World School Family Summits, the We Are Worldschoolers Facebook group and the Virtual Worldschooling Summits are about forming community around that magic.

My mom and I left the United States over 10 years ago to travel the world and have the immersive, educational experience of a lifetime. I was 10 years old when we started Worldschooling in 2009, and at that point, the movement didn't even have a name yet.

Now when I say that, I'm not saying that at that time we were the only Worldschooling family, but the community as we know it today didn't exist back then. Over the years we met other traveling families (both physically and digitally), but these meetings were few and far between, and we soon found that we lacked the support and connection that we were so desperately seeking. We loved the lifestyle that we had made

for ourselves, but there was one crucial, missing component: community.

It was about 3 years into our travels that this desire for community came to a point. This was around the same time that I had hit adolescence and started to focus more on the social aspects of our lifestyle. My mom, now a mother to a teenager for the first time, also sought support from other like-minded families to help get us through a rather difficult time, but despite how hard she looked, this community was nowhere to be found.

Feeling isolated and alone in my experience, my mother and I had many conversations surrounding our options. Neither one of us wanted to return to the US and pick up where we left off, and since the community we were looking for didn't already exist, we were left with one possibility: we had to create the community that we wanted in our lives. And so, we did.

That year, in 2012, we both founded

“[S]ince the community we were looking for didn't already exist, we were left with one possibility: we had to create the community that we wanted in our lives.”

Project World School, a company with the goal of bringing Worldschooled teens together for international, temporary learning communities, and also began to facilitate online groups to support other Worldschooled families.

At first, we created and worked on these projects to fill a need within our own lives, but quickly began to realize that in doing so, we were also filling needs in the lives of others. This is the reason that we still maintain these projects almost a decade later, even





When we began to advocate for Worldschooing, we sought to make the community as inclusive as possible, inviting families and people with varying approaches when it came to travel, education and family culture. This philosophy of inclusivity is the reason the Worldschooing movement has exploded over the last few years. We feel it's vital to facilitate Worldschooing communities both online and in person so that families feel supported wherever they are on their journeys.

though our needs are not the same anymore.

From 2013 onwards, we've created a number of temporary learning communities specifically for teenagers in various parts of the world. These learning communities were created for a few main reasons: First, to create a community that would facilitate strong bonds and friendships between otherwise isolated young adults. Second, to create a safe opportunity for teenagers and young adults to travel and experience the world, and finally, to use these experiences out in the real world to learn about culture and history, as well as to instill compassion and understanding within our new generation of young adults. Project World School is still operating and runs numerous trips a year for these very reasons.

In 2016, we set out to answer a call in our community for an in-person family event. At this time, there hadn't yet been a Worldschooing gathering where kids and parents alike could connect with one another, face to face. And so, we made plans and preparations for a

Worldschooing meetup in Puerto Morelos, Mexico, only expecting about 30 people to show up. To our surprise, 150 people signed up, and we accidentally found ourselves thrust into the role of 'conference organizers.' This gathering became our very first Project World School Family Summit, and we have since run a total of 6 of these Summits over the last 4 years.

At these Family Summits, families can share information and expertise, and are able to support one another with the unique problems Worldschooers face in their day-to-day lives. This is facilitated by the 'un-conference' format of the events. We don't fly professional, keynote speakers into our events. Instead, we source all of our presenters and panelists from within our own community. This serves two purposes: It creates a platform for community members to reach each other, and it ensures that the information shared is always relevant to Worldschooers.

The other part of the Family Summits which is just as important is the Kid's Camp.

For a lot of the children in attendance, this is the first time that their Worldschooled experience is normalized; suddenly, they find themselves in a context where there's no need to explain or defend themselves. Instead, there's only connection, play, and belonging; all things essential to a healthy childhood.

Now, in 2020, the Worldschooled community is a thriving, growing movement, with various online groups and in-person events which cater to the different needs of our community. Now, no traveling family has to feel isolated or alone in the way that we did back when we first started.

This was the community that we were looking for all those years ago, and we're so happy we created it.

What is Worldschooled?

Worldschooled is the intentional act of viewing the world as one's classroom. In its simplest form, Worldschooled is the act of combining education and travel usually led through experiential learning and inquiry. Worldschooled takes the principles of learning outside of a classroom, combining family multi-age learning with travel, utilizing cultural and social learning as the foundation. The other quality unique to Worldschooled is utilizing worldviews as a lens to consider global perspectives and explore how we fit into the world.

The term "Worldschooled" was coined over a decade ago and has been used by thousands of families since. My mom and I have helped to popularize the term through our work, community building and advocacy.

Worldschooled has become a broad educational philosophy that combines each individual family's educational style with some

level of travel. What makes Worldschooled different from other educational modalities, is that there is no one way to Worldschooled. For example, my family's brand of Worldschooled combines self-directed inquiry, unschooling, social and experiential learning and travel. Others may include a formal homeschool curriculum. Others yet may travel part time and enroll their kids into a local school for the cultural immersive experience. There are as many ways to Worldschooled as there are families.

What all Worldschooleders do have in common is the desire to adapt worldly experiences as inspiration to learn and go deeper. Worldschooled provides a "world-class education" to all that are faced with the demands of a highly globalized and changing world. And community connection through online and in-person gatherings enriches the experience.

Bio:

Miro Siegel is a 21-year-old traveler and youth facilitator for Project World School. His learning is self-directed and influenced by the ever-changing world around him. To him, this is Worldschooled. He is interested in, and is an advocate for children's rights, travel as education and a spearhead of the Worldschooled movement that he and his mother helped create. Miro Siegel traveled to Amsterdam in April, 2016 to present at the TEDxAmsterdamED conference and to bring a slightly more 'unconventional' view to the table. In 2017, Miro attended the Youth Global Changemakers Summit in Switzerland, one of 60 delegates selected from over 6000 applicants. He aspires to bring cultural awareness and immersion to more people, because he truly believes that travel can bring peace to the world and inspire learning without measure.

Fall Schedule for SEA Online Classes



August 3-August 16:

[Middle School Research Boot Camp](#)

Ages 11-14



August 10th to November 16th:

[Elementary Level Science Series](#)

[Bundle](#)

Ages 6 - 10



August 5-19, 2020:

[Research Bootcamp for Parents](#)

Ages 18+



August 17-30, 2020:

[High School Research Boot Camp](#)

Ages 14+



August 31-October 12, 2020:

[Exploring Philosophy with The](#)

[Good Place: Season 1](#)

Ages 14+



August 17th - October 19th:

[The Science of Climate Change & Climate Action](#)

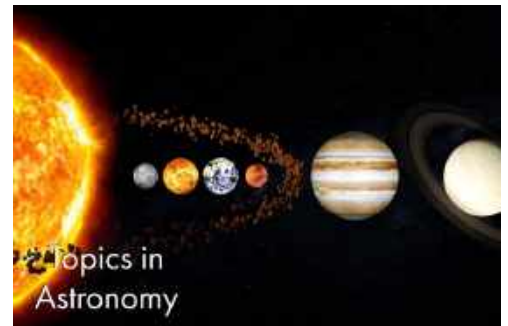
Ages 10+



August 6 - August 20:

[Topics in Astronomy - Elementary Level Science Series Session 1](#)

Ages 6 - 10



August 10 - August 24 (Section 2):

[Topics in Astronomy - Elementary Level Science Series Session 1](#)

Ages 6 - 10

Fall Schedule for SEA Online Classes



Writing from Different Viewpoints:
Ethics and the Future

August 31-October 25, 2020:

[Writing from Different Viewpoints:
Ethics and the Future](#)

Ages 14+



World War Z and
The Real World

August 31-December 18:

[World War Z and the Real World](#)

Ages 14+



The Stargazer's Club

September 1, 2020 - once a month
after that:

[The Stargazer's Club - Family
Series](#)

Entire Family



How Earth
Got Its Shape

September 7th - September 21st:

[How Earth Got Its Shape -
Elementary Level Science Series](#)

[Session 2](#)

Ages 6 - 10



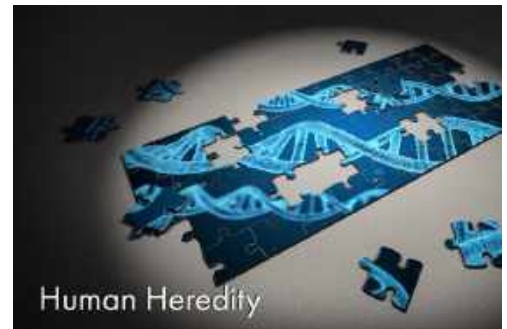
Approaching Controversial
Memorials

September 14-October 5, 2020:

[Approaching Controversial](#)

[Memorials](#)

Ages 14-18



Human Heredity

September 16th - December 14th:

[Project-Based Human Heredity](#)

Ages 14+



A Young People's History
of the United States

September 17-December 17, 2020:

[A Young People's History of the
United States](#)

Ages 10-14



High School Writing Using
Malcolm Gladwell's Outliers

September 21-December 13:

[High School Writing with Malcolm](#)

[Gladwell's Outliers](#)

Ages 13+



Reboots and Retellings
(for Middle School)

September 28-October 19:

[Reboots and Retellings for Middle](#)

[School](#)

Ages 11-13

Fall Schedule for SEA Online Classes



Reboots and Retellings
(High School)

September 28-October 19, 2020:

[Reboots and Retellings for High School](#)

Ages 14+



Surviving Together:
A Minecraft Experience

September 28-December 14, 2020

[Surviving Together: A Minecraft Experience](#)

Ages 11-13



Protest Songs Through History:
A Reading, Writing,
and Listening Project

September 28-December 30:

[Protest Songs Through History:
A Reading, Writing, and Listening](#)

[Project](#)

Ages 14+

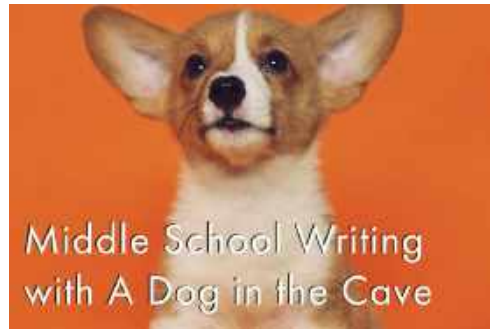


The Birds & the Bees &
the Flowers & the Trees

October 5th - October 20th:

[The Birds & the Bees & the Flowers
& the Trees - Elementary Level
Science Series Session 3](#)

Ages 6 - 10



Middle School Writing
with A Dog in the Cave

October 6 - November 24, 2020:

[Middle School Writing with A Dog
in the Cave](#)

Ages 11 - 13



Human Origins:
Human Evolution from Prehistory to the
Agricultural Revolution

October 12-November 30, 2020:

[Human Origins: Human Evolution
from Prehistory to the Agricultural
Revolution](#)

Ages 12-16



Exploring Philosophy
with The Good
Place: Season 2

October 26-December 7, 2020:

[Exploring Philosophy with The
Good Place: Season 2](#)

Ages 13+



Survive a Zombie
Apocalypse

October 26-December 14, 2020:

[Survive a Zombie Apocalypse](#)

Ages 14+



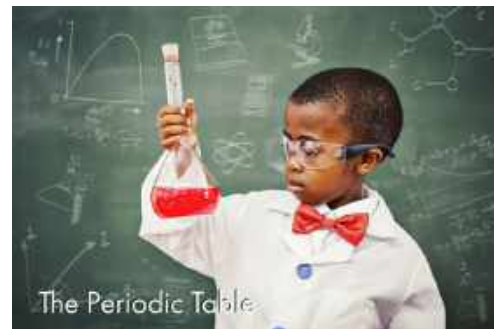
Writing from Different Viewpoints:
Ethics and the Family

October 26-December 20:

[Writing from Different Viewpoints:
Ethics and the Family](#)

Ages 14+

Fall Schedule for SEA Online Classes



October 26-December 20, 2020:

**[Understanding Identity:
Introduction to Intersectionality
Studies](#)**
Ages 14+

November 2nd-November 16th:

**[The Periodic Table - Elementary
Level Science Series](#)**

Ages 6 - 10

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Critical Thinking: Metrics and Methods

Written by Dr. Sabrina Weiss

For those of us who remember the time before the Internet (and who don't automatically think of it as "the Dark Ages"), it is apparent that today's learners face challenges that never even occurred to us. Our biggest concerns were about obtaining access to enough static resources like books, magazines, and microfilm to write our research papers. The evening news that aired on network television was generally accepted as reasonably credible and authoritative. And experts were generally seen as experts - physicians, scientists, engineers, agency workers. Today, though, nothing is at it seems. While some choose to blame postmodernism (and other post-y thought revolutions) for the upheaval of epistemological authority, what matters is not how this happened, but "where do we go from here?"

I have seen myself and am confident that you have also seen students struggling to reconcile the nearly infinite deluge of information and data that surround them today. Many of my students engaged in behaviors that I felt were troubling, or antithetical to learning - most notably attempting to discredit or dismiss material we discussed in class as "biased." Indeed, "bias" has become a type of four-letter word that, like other expletives, my students have taken to flinging around in an apparent power play. But this is not defiance; it's coping. Our students are trying to COPE with the massive amount of information around them paired with few effective ways to not just filter, but to create useful filters for themselves while also staying open to learning new things that may be troubling or uncomfortable for them. I

am not talking about the "safe space" issue - at least not here and now (I am happy to explore this topic further at another time). I am talking about utilizing a way of evaluating, sorting, and engaging with information that on face is not as it may appear through the cognitive and psychological lenses of students - both tempting but poorly formed ideas and upsetting but valid ideas. In this, I believe that revisiting the concept and practice of "critical thinking" holds value.

Often credited with an early discussion of critical thinking (also described as "reflective thinking"), John Dewey, American philosopher of pragmatism and educational reformer, defined it as: "active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it, and the further conclusions to which it tends" (1910).

In philosophical fashion, John Dewey also describes what is NOT critical thinking: immediate acceptance of an explanation without reflection or judgement is not critical thinking, nor is criticism driven by dogged political beliefs. This is not to say that political concerns cannot drive critical inquiry; Paolo Friere, who wrote *Pedagogy of the Oppressed* (1968), described "critical pedagogy" as a way to give students tools to help them "recognize connections between their individual problems and experiences and the social contexts in which they are embedded." By connecting ideas about society, science, history, and other subjects to issues that matter and are real to learners, we help them understand WHY they are important, and likely engage them through ethos and pathos instead of just logos.

"Critical thinking" has been and continues to be a popular buzzword in educational institutions. I recall attending a meeting of faculty

where a presenter espoused the great benefits of “critical thinking” to student professional success. But he struggled to provide realistic and practical ways for professors to help students attain this skill only showing correlation with more reading and writing in courses. I left dissatisfied; any buzzword could have been substituted in and had a similar impact. But I like to ponder this often, as an ethicist, as an interdisciplinary scholar, and as someone whose passion involves provoking students into thinking way too much, just as I do.

“I do not believe that it is necessary to disagree with ideas (criticizing) in order for there to be critical thinking and effective engagement, yet I believe that without providing more options for engaging constructively, learners may feel trapped in disagreement as the only way to provoke discussion.”

While I do not seek to establish some novel or universal definition of “critical thinking” beyond the foundations laid by Dewey, Freire, and others, I do believe that it is important to identify some specific characteristics or goals that can be achieved through reasonable pedagogical actions. Therefore, I propose the following metric for “critical thinking” that serves as a guidepost for evaluating skills:

Critical thinking is demonstrated by 1) asking effective questions in pursuit of better understanding a situation, issue, or topic, and 2) seeking contextual understanding of external (e.g. historical, social) factors and internal (e.g. personal bias, individual subjectivity, epistemic limitations). I do not believe that it is necessary to disagree with ideas (criticizing) in order for there to be critical thinking and effective engagement, yet I believe that without providing more options for engaging constructively, learners may feel trapped in disagreement as the only way to provoke discussion. I offer two examples of ways that I invite critical thinking through my teaching that don’t rely on a binary “agree/disagree” format and that instead enriches participation and learning.

Example 1: In my courses where I teach about Social Contract Philosophies, I emphasize that my goal in teaching these is not to indoctrinate learners into simply accepting these ideas as part of the Western Canon (though they are often considered such). Instead, I show how these ideas influenced the people who created institutions of government and communities of practice, like the medical profession, and thus are part of the foundation for values and practical assumptions of those in power (2). To understand these power structures, we do need to have some understanding of the ideas behind them. Thomas Hobbes, John Locke, and Jean Jacques Rousseau certainly wrote influential works about what they thought society was and why we have laws, governance, and other rules in place. But those ideas often don’t reflect our reality today; the drive to think about the questions they thought about, however, is valuable to instill in our learners. The questions they asked, like “why do we have government?” or even “do we need government?” are highly effective questions (1) that lead us to question our assumptions and spark a chain of dialogue and investigation.

Example 2: I believe that nearly any activity or source can be used for learning when critical thinking, inquiry, and pedagogies are brought to the discussion. *Minecraft*, the popular creative building game, is an excellent platform that can not only give students a practical application for algebra, geometry, and physics, but also can support ecology, geology, and economics if used cleverly (1). Any activity in *Minecraft* can be framed as a project, from which we can promote skills related to project development and implementation - design, planning, proposal, iteration, review, presentation. The *Minecraft* community, a multi-generational, international creative community, is an excellent opportunity to explore the social and technological context of the game and its players/creators (2). And, of special focus for me, as a lifetime perfectionist, *Minecraft* is also an excellent vehicle for metacognitive skills like recognizing one's own frustrations or fears, setting and meeting goals, and failing forward.

In this, the digital format is perfect for allowing learners to attempt radical, risky things they might not feel comfortable trying in the material world, for fear of wasting materials or making a mess. Even dying from zombies and skeletons can be turned into an opportunity for learning - especially learning socially - when we feel safe to vent our frustrations and find that everyone around us has empathy for that experience. It is a great day in one of my *Minecraft* classes when a learner finds comfort with their peers through shared difficulty and collaborative creativity.

These are just two examples to give an idea of the great potential that we can tap for promoting critical thinking through learning experiences - whether in approaching core theories in engaging ways or in creatively presenting technologies as active learning opportunities.

We must be careful not to fall into the trap of equating "critical thinking" with good thinking (or even "GoodThink"), despite the



temptation to simplify our task of selling the idea to our learners. Should we be surprised that to effectively advocate for and encourage critical thinking, we must constantly exercise it ourselves? Traits that I see as important to cultivate for an effective critical thinker include: epistemic humility, ethical sincerity, cognitive generosity, and intellectual rigor. By these, I mean that we all should be open to realizing that we do not know everything and can learn more; when faced with a situation, we approach it with a sincere desire to engage without cynicism (especially for others); we make a good faith effort to understand the ideas and people; and we seek good evidence and analyze well without taking shortcuts through assumptions. I say “we” because these apply to everyone - learners and instructors - because instructors must model these traits in our teaching if we want learners to practice them. It can be difficult to see a learner take a position that is in opposition to what we think is “correct,” and some subjects have more leeway than others. But regardless of subject, asking, “why do you think that?” with sincerity and generosity can lead to better understanding for everyone involved, even if this snapshot of thought is not what we expect.

It has been a pleasure to share some of my thoughts on critical thinking and ways that we can seek to promote it with our learners and for ourselves. I look forward to further dialogues about pedagogical approaches and opportunities to excite our learners.

Bio:

Dr. Sabrina Weiss specializes in developing theoretical models that represent the ethical and social dimensions of issues at the intersection of science, technology, and society. Topics of interest include gender and sexuality, discourse theory, bodies and cyborgs, bioethics, food ethics, and innovative pedagogies, as well as the institutional and change dimensions affecting those areas.

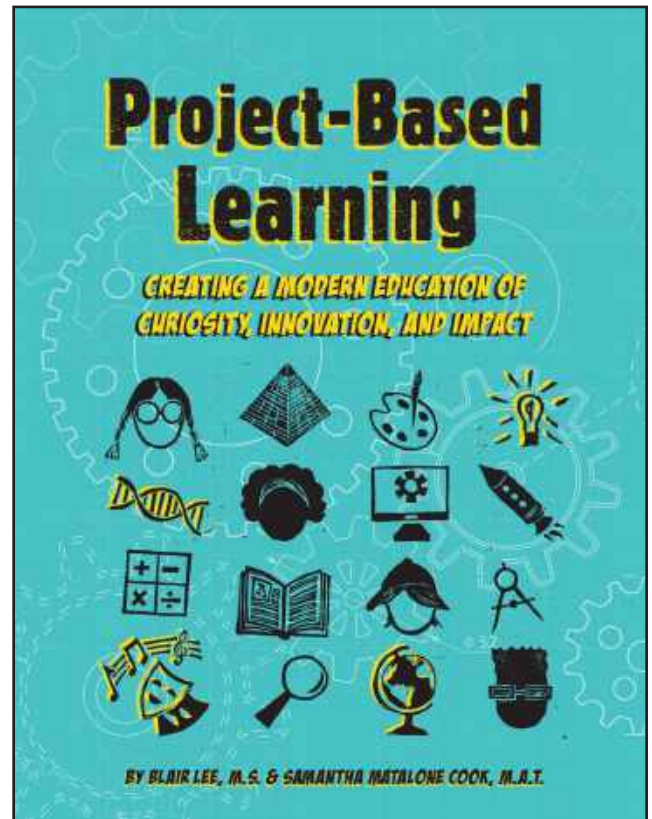
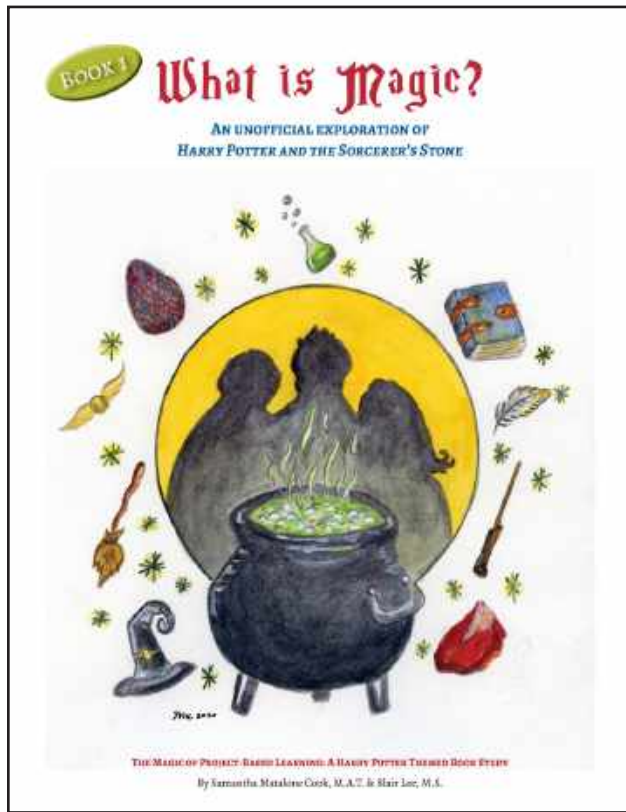
Dr. Weiss earned a B.S. from Stanford’s Science, Technology, and Society program, an M.S. in Bioethics from Albany Medical College, and a Ph.D. in Science and Technology Studies at Rensselaer Polytechnic Institute and is a former U.S. Naval Officer (ROTC) who served overseas in Japan and at the Office of Naval Research. An interdisciplinary and international scholar, Dr. Weiss has taught at Rochester Institute of Technology, which houses the National Institute for the Deaf, and at Leuphana University in Lüneburg, Germany. Dr. Weiss is a coauthor of *Worlds of ScienceCraft: New Horizons in Sociology, Philosophy and Science Studies* (2009).

References:

- Dewey, John. “How we think. 1910.” Buffalo: Prometheus (1991).
- Freire, Paulo. *Pedagogy of the oppressed*. Bloomsbury publishing USA, 2018.



Project-Based Learning: Creating a Modern Education of Curiosity, Innovation, and Impact and ***What is Magic? An Unofficial Exploration of Harry Potter and the Sorcerer's Stone*** available now at SEA Books & More!



History Quest

101 Things Everyone Should Know

Online Classes

Paws 4 Logic

Dog on a Log

Historical Fiction

Re-Imagine Education

History Odyssey

How to Write a Child

REAL Science Odays

Be Naturally Curious

Magic Forest Acad

Homeschool Support

Alphabet Books

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SEA BOOKS AND MORE
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Conceptual Academy: Chemistry Science Courses: Grades 9-12



Reviewed: July, 2020 by Blair Lee, M.S.



Basic Details at a Glance

- Grade Level: grades 9-12
- Year-Long Chemistry Lab Class

Publisher's Information

- Conceptual Academy
- Support@ConceptualAcademy.com
- <https://www.conceptualacademy.com/>

Conceptual Chemistry is a guided self-study laboratory course which includes a textbook and a video series that goes along with the text. There are four versions of Conceptual Chemistry: the Full Version, Life Science, Contextual, and College Prep. The recommended span to complete the Full Version is 25 – 36 weeks. The recommended

span to complete the other three versions is 16 – 25 weeks. Students who take these courses will have a solid understanding of chemistry. They will be well prepared for college level science and understand the basic chemistry in their day-to-day life. This book + video + labs course is the most complete package available for homeschool chemistry. My only complaint is that I did not find it when I was homeschooling my son.

You might be wondering which of the 4 chemistry courses I recommend. I will be honest that I went into this review thinking I knew the answer to this question. In fact, I was wrong. I expected the 3 shorter versions to be the same but less. Instead, each of the four courses focuses on different aspects within the field of chemistry.

If you are looking for a high-quality, engaging high school level chemistry course you do not need to look any further than **Conceptual Chemistry**.

When my son was in middle school, I looked forward to the time when I would homeschool chemistry with him. I taught chemistry at the college level. I enjoyed teaching it, and I had some very definite ideas about how chemistry, the central science that forms the foundation for all other sciences, should be taught. I looked at many different chemistry courses to use with him, but they all fell flat for one reason or another. So what would the perfect homeschool high school chemistry course look like?

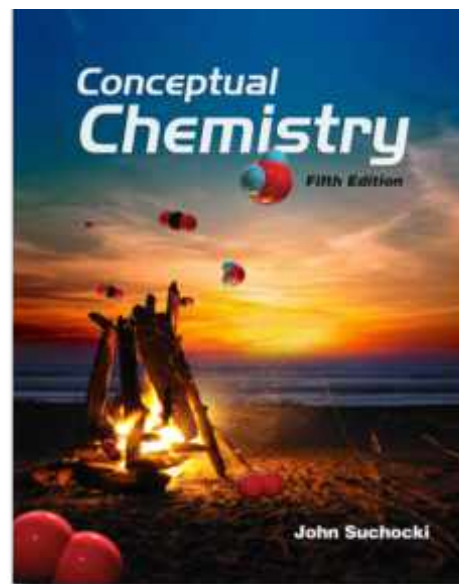
The Components for the Perfect High School Chemistry Course for Homeschoolers

1. Comprehensive textbook that:
 - a. Starts with the basics and builds from there so that students finish the course with a solid foundation in chemistry
 - b. Can be finessed to make it math-heavy or math-light
 - c. Presents information aligned with that taught at public high schools, colleges, and universities
 - d. Has an accompanying schedule so that parents are not left wondering about the specific material students need to cover.
 - e. Has quizzes
 - f. Has an answer key for assigned problems
 - g. Has tests
 - h. Does not bore your socks off
2. Has Labs
 - a. that are easy to integrate into the course
 - b. That are thoughtfully paired as a hands-on application of the course material

- c. requiring lab materials that are not expensive to gather & a lab Kit for those people who would rather spend the money than gather supplies
 - d. that have been tested to ensure they work in home environments
 - e. That teach lab technique in a way that is engaging, thoughtful, and explained well
3. As a bonus: Has online lectures to go along with the course.

Conceptual Chemistry meets all these criteria.

For years I looked for a high school chemistry course that had the textbook and lab component. I wasn't worried about the lecture part, because I could lecture from the course. (Yes, I have done this a time or two for my son.) I could not find a course that met all of the requirements listed under #1 and #2. Much to my disappointment, high school chemistry ended up being frustrating, and time consuming, as I was forced to actually craft my own material. Luckily I was able to use the lecture notes and labs from when I taught chemistry at the college level. That is not really a workable option for most homeschoolers.



Textbook: Conceptual Chemistry by John Suchocki

There is one 1 textbook for all 4 versions of Conceptual Chemistry. The textbook has a good structure for the presentation of the science topics – elements, atomic particles, molecules & atoms, chemical reactions, environmental. It is a comprehensive course that starts with basic concepts and builds from there. There is a nice mix of fonts, font color, and highlighted text to help make sure students key into important information. The photos and illustration are well chosen. Much of this is fairly standard for this type of textbook.

In addition to these more standard features, Conceptual Chemistry has some unique features that make this a special science textbook. There are hands-on activities that are easy to set up and conduct woven into the core text at the start of every chapter. These meaningful activities provide a real-world context for the material students are learning. Suchocki does a masterful job of presenting the math in a way that makes it feel “doable” without making it overwhelming. I love the way the problem sets are written and organized. They are organized into the following sections: Comprehension, Hands-On Application, Mathematical Application, Evaluation, and Readiness Assurance Test. This is a great structure for teaching. This way you can pick and choose those areas you prefer to use for assessment. Don't worry if you are not sure how to make use of the sectioned problem sets. The videos have quizzes and problem sets embedded into them. Finally, between each chapter is a section called “Contextual Chemistry: A Spotlight on Issues Facing Our Modern Society.” These are 1 ½ page essays followed by thoughtful discussion questions. The high-interest topics range from Global Climate Change to Hair and Skin Care to Pseudoscience.

Online Lectures, Images, and Homework Sessions



John Suchocki

The taped online lectures set this program apart making it the most complete package on the market for high school chemistry for homeschool students making it the best high school level homeschool friendly chemistry course on the market. Nothing else I've seen even comes close. The online component contains a nice mix of videos, images, and teacher speaking. In addition to the lectures, the online portion has multiple choice Lesson Reading Quizzes and it has Homework Practice Sessions. The Homework Practice Sessions have students respond with a short answer. Once an answer is given (you can write anything in this section, it does not check for correctness), there is a button that takes students to multiple choice questions. They thought to include a closed caption option for students who need that. There is also an accompanying Teacher's Guide, study advice for students, and downloadable homework sheets. As with the text, the author seems to have thought of everything you might need to create a very thorough course.

The videos are fairly short, generally between 5 and 10 minutes. Some of the videos are all vectors, others have John Suchocki talking to the screen, and others have demonstrations on them conducted by the team of Kai and Maile. It is not clear if Kai and Maile are scientists or actors, but it doesn't matter. Their presentations are engaging and educational. They follow along with the assigned sections of the text. Like the text, they contain manageable amounts of theory that nicely build on previous concepts.

The images that are paired with vocabulary and math and science concepts are well chosen. I expect these will lead to a much more complete understanding. For example, the discussion of weight versus mass or the densities of iron versus Styrofoam lends itself particularly well to a video presentation where images, math equations, and an oral explanation are incorporated to help students better understand these core science concepts.

The Labs



John Suchocki and I see eye-to-eye about the importance of incorporating meaningful hands-on labs throughout a science course in order to adequately learn. As mentioned above, there are simple but meaningful labs interspersed through the text, and there is a lab section within the problem set at the end of each chapter. Those are great, but there also needs to be a more formal treatment of lab work so that students learn proper lab procedure, the methodical approach scientists use when conducting experiments (the Scientific Method), and have guided immersive hands-on assignments where they demonstrate the science they are learning. This is done with the accompanying lab manual, *Beyond the Laboratory Manual*. This was written to take “a cyclic guided approach using everyday materials.” This manual has a materials list, information on writing lab reports, and lab sheets. I appreciated the focus on researching

subjects before getting to the hypothesis. Too often, hypotheses are treated like a guess instead of a supposition based on existing knowledge. From there students are scaffolded through the process of conducting the lab while recording observations and making conclusions. It is a thoughtful and well done approach.

When I asked John about a lab kit to go along with his course, John told me that there was one, but it was not necessary because all the supplies are easy to get, probably even from your own pantry. I wanted to see the kit anyway. It is an amazing kit, with absolutely everything you could need in it. It even comes with a hot mitt. After looking through the course and the lab manual that comes with it, I have to agree with John, you do not need it. I like that you have the option of spending the money on the kit if you want the convenience. There are three versions of the kit ranging in price from \$148.50 – \$238.50. If you do not want to spend that much money, you can easily do the experiments without the kit.

Conclusion

With an excellent textbook, superbly done companion videos, and meaningful hands-on labs this is the best high school level chemistry course available for homeschooling students.

Where to get this course:

The textbook is for sale through Amazon or other third-party book sellers. John tells me there is no need to buy the most recent edition. An earlier edition will do.

[The video series is for sale at Conceptual Academy.](#)

The [lab kit is available through eScience Tools.](#)

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- Breaking Down Barriers with LGBT Homeschoolers
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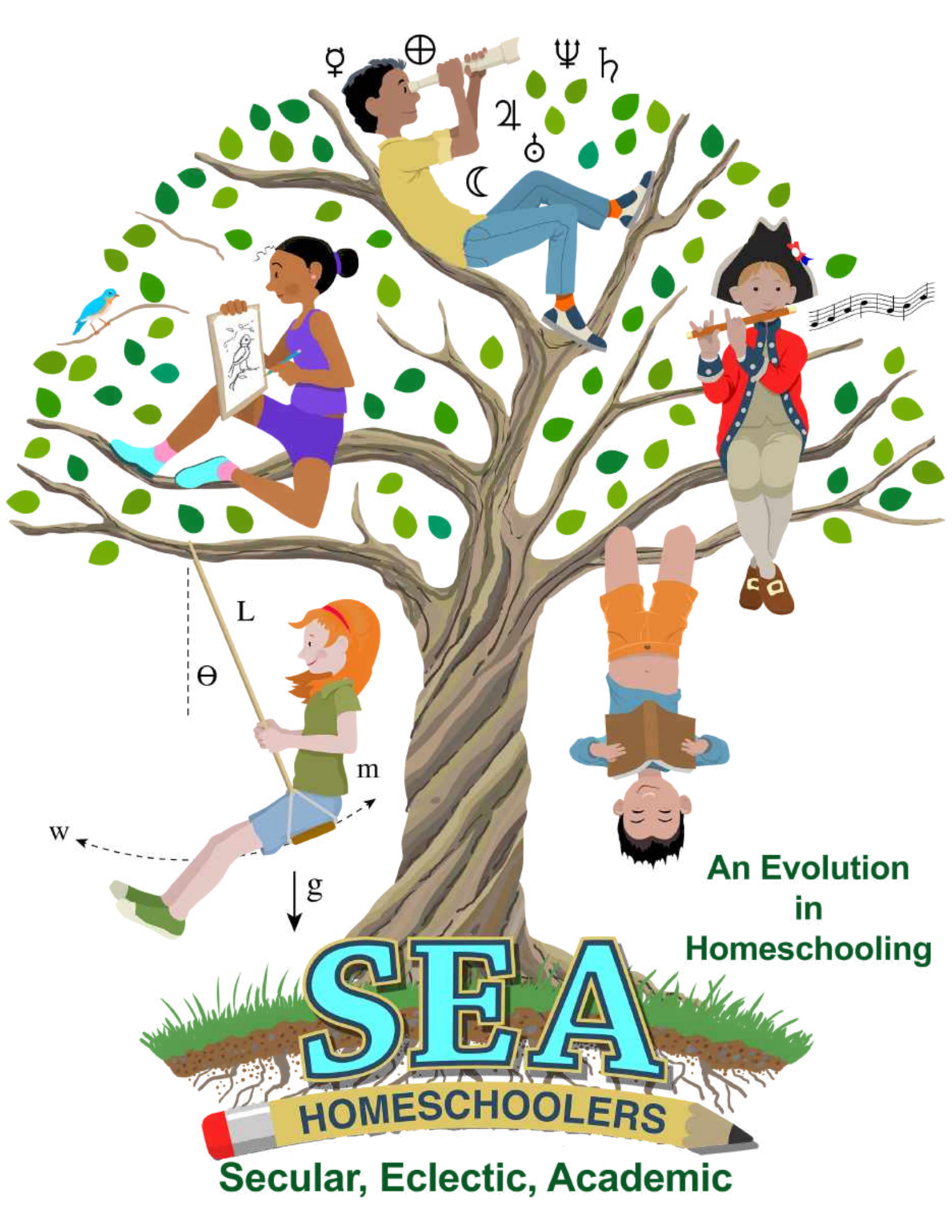


Money
Munchkid\$

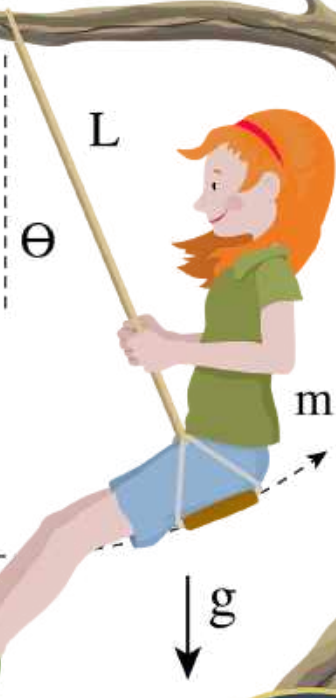


HISTORY UNBOXED





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An Evolution
in
Homeschooling

SEA

HOMESCHOOLERS

Secular, Eclectic, Academic