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HOMESCHOOLERS

WINTER 2022

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FROM THE EDITOR

"When I heard your son was homeschooled, I expected him to be sheltered with limited knowledge. Instead, he knows about a lot of different things, and he has done so much." This was said to me a couple of weeks ago.

My response was that "We didn't homeschool to do less. We homeschooled to do more." When I flippantly said this, I didn't go into detail about what that "more" was. To help with the stereotyping, however, maybe I should have.

When I decided to make myself responsible for my child's education, I understood that there were important areas that needed more, and in some cases different, focus. I spent time pondering what needed to be taught and where learning, teaching, and knowledge was going in the future. It was this deep-thinking about my child's journey through learning that led to "more."

There were times when more meant, more teaching about undertaught subjects and topics. More meant the inclusion of lessons I understood to be important that were not taught at all. One way we did this was by taking more time for reading and discussing books and articles that enhanced understanding and brought new and different perspectives.

As a homeschooled student, my son had more say in his learning. He was given the time and space to focus on his interests. This led to his understanding of the value his primary teacher placed on him as a learner.On the other hand, more sometimes meant more time spent learning, even if it wasn't of particular interest to him. If I felt a subject was important to learn, we made time for it.

Time is limited, however. More sometimes meant less, too. For example, to focus on U.S. government and politics in my son's sophomore year of high school, which was MORE, he studied U.S. history his freshman year and world history as a Junior. We skipped the introductory history taught in 9th grade in California.

At this time, it is clear an important area that deserves more focus is teaching learners to spot misinformation and disinformation. Real learning and understanding require this important academic skill. My son might be in college, but I am still providing information for those who want it. We have an important article in this issue from *John Cook* for those who want to teach this topic. I haven't stopped teaching my son either. He was the first person with whom I shared John's article!

Happy New Year,
Blair

How to Spot Misinformation

By John Cook

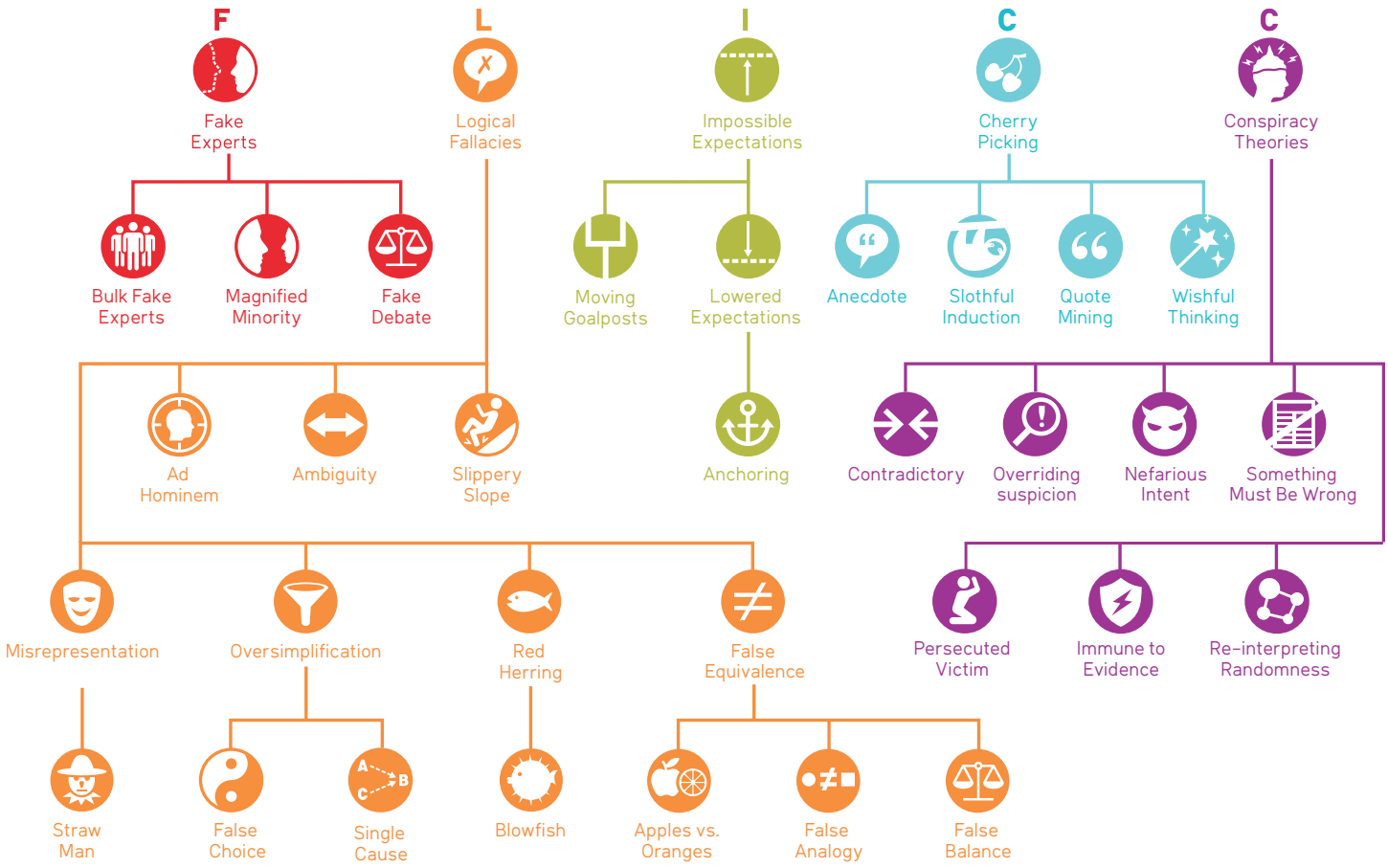
Misinformation spreads through social networks like a virus. Part of the reason for this is misinformation is more viral than accurate information. Because myths aren't bound by reality, they can be more attention-grabbing or emotive, which makes them more likely to be liked and shared.

The last thing any of us want to be is a super spreader of misinformation. How do we avoid that? By inoculating ourselves against the misleading techniques of misinformation. In other words, we need to learn the rhetorical techniques and logical fallacies used in misinformation, so that we can spot attempts to mislead us.

A useful framework for learning the techniques of misinformation is **FLICC**. This is an acronym summarizing the five main techniques of science denial: fake experts, logical fallacies, impossible expectations, cherry picking, and conspiracy theories.[1] Over the years, I've expanded the FLICC framework to include a wide range of rhetorical techniques, logical fallacies, and traits of conspiratorial thinking.[2]

Fake experts convey the impression of being an expert without possessing the actual relevant expertise. They can be persuasive as the general public might not notice that a person with expertise in one field is talking about a topic outside their area of expertise. One way that fake experts are deployed and influence the general public are through false debates such as when the media give equal weight to both sides of an issue where there is scientific consensus. This conveys the misleading impression of a 50:50 scientific debate when there is actually strong agreement among experts.

Logical fallacies are found in arguments where the conclusion doesn't follow from the premise, such as the argument "I have blue eyes therefore I'm an expert in quantum physics". The premise (I have blue eyes) does not logically lead to the conclusion (I'm an expert in quantum physics), so the argument is logically invalid. There are a number of logical fallacies found in climate misinformation. False choice—otherwise known as false dichotomy—involves



presenting two choices when a third choice may be available or both choices might be valid (e.g., "you're either with us or you're against us"). Red herrings are irrelevant points designed to distract people from a more important issue (e.g., "we shouldn't drink water, it's the leading cause of drowning!"). Ambiguity is another fallacy that confuses people by using words with multiple meanings. For example, the word uncertainty is used by scientists to describe a well defined range of values, but among non-scientists, uncertainty means being unsure if the measurement is correct at all. This difference can be exploited when scientists talk about uncertainty by arguing that they don't know what's going on.

Impossible expectations demand unrealistic standards of scientific proof, usually to delay acting on the science. This tactic was pioneered by the tobacco industry in the mid-20th century, demanding higher levels of proof to cast doubt on the health impacts of smoking. The strategy exploits the fact that science operates in probabilities, by arguing that if science can't establish exact certainty (something it can't do—that's not how science works), then it's too soon to act. One version of impossible expectations is moving goalposts—demanding evidence then changing to a more stringent demand when the requested evidence is provided.

Cherry picking focuses on select bits of information that confirm your beliefs while ignoring any science you disagree with. How do you tell if someone is cherry picking? If the conclusion from a small selection of the available data conflicts with the conclusion from the full body of evidence. Anecdotes are a common form of cherry picking that rely on personal experience or isolated examples instead of scientific evidence. Anecdotes can be persuasive but they're no substitute for scientific research.

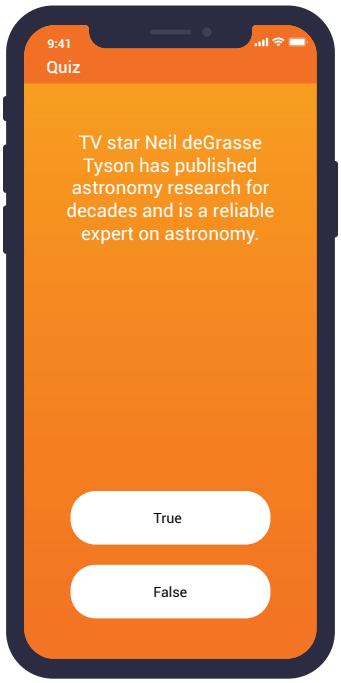
Conspiracy theories involve the suggestion of a secret plan to implement evil schemes. Knowing the traits of conspiratorial thinking can help you spot the telltale red flags of a baseless conspiracy theory. One red flag is overwhelming suspicion of official explanations. When conspiracy theorists believe that scientific data has been faked, that takes them down the rabbit hole of believing that any scientific organization supporting the science must be in on the conspiracy. Another conspiratorial trait is detecting patterns in randomness. We all tend to see patterns in random images, whether it's patterns in clouds or faces in blurry Mars photos. But conspiracy theorists take pattern detection to extremes, drawing imaginary connections between unrelated things. Random events are re-interpreted as being caused by the conspiracy and woven into a broader, interconnected pattern.

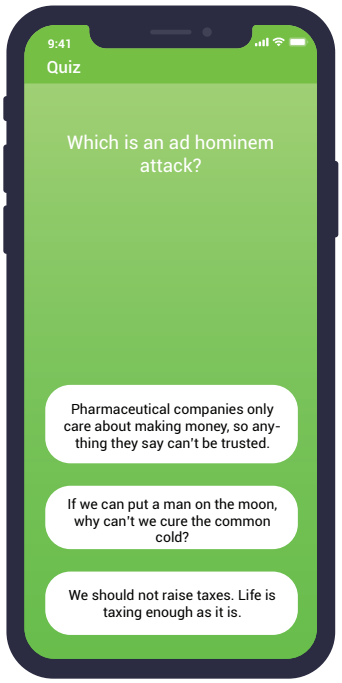
The FLICC taxonomy is a useful framework for making sense of misinformation but it faces a big challenge—critical thinking is hard! All those fallacies and rhetorical techniques are a lot to take in. How do our students (and ourselves) not only learn each fallacy, but internalize them deeply enough to spot these techniques in real life? The key is practice.

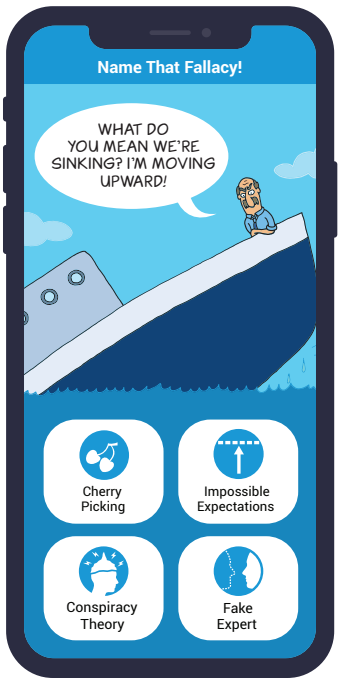
I developed a smartphone game that encourages players to practise critical thinking. The game I've developed, in collaboration with the creative agency Goodbeast, is called Cranky Uncle. The goal is to become a "cranky uncle" who uses a range of misleading rhetorical techniques to reject the conclusions of the scientific community. By adopting the mindset of a cranky uncle, the player develops a deeper understanding of science denial techniques, which ultimately inoculates them against misleading persuasion attempts in the future.

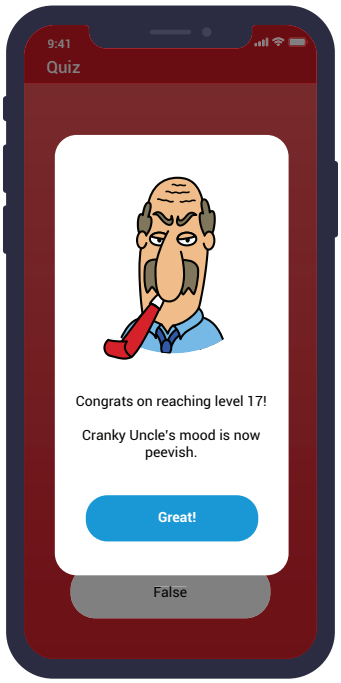
The Cranky Uncle game has two main elements. The first part is introducing players to the different techniques of science denial in the FLICC taxonomy. Cranky Uncle mentors you, explaining how you can use techniques like cherry picking and conspiracy theories to deny science.

The second part of the game is the quizzes. Players are shown examples of misinformation and have to spot the misleading techniques. When players suc-









cessfully spot the denial techniques, they earn cranky points. Once they collect enough cranky points, they level up—with each level up, Cranky Uncle's mood gets crankier and his face gets a little redder and angrier. The purpose of these gameplay elements—collecting points, leveling up, the cartoons and humor—is to motivate players to get further into the game. The more players practise critical thinking and play the game, the more resilient they become against misinformation.

In the months since the Cranky Uncle game was released, educators have been using the game in classes from elementary school to grad school. What has especially surprised me is how the game has been adopted in a range of subjects as diverse as biology, environmental science, English, and philosophy. Misinformation techniques are relevant to any subject that contains misinformation—which it turns out is all subjects. To provide support and resources for teachers interested in using the game to teach critical thinking in their classes, I published the Teachers' Guide to Cranky Uncle in

early 2021. The guide explains the scientific research behind Cranky Uncle and suggests a number of critical thinking activities to complement the game.

For example, teachers can download powerpoint slides with definitions of each FLICC fallacy along with cartoon examples. Another interactive exercise is roleplaying. Students break up into small groups and one student plays a cranky uncle using fallacies from the game, while other students try to respond to the fallacies. This is a fun example of active inoculation - inoculating yourself against the techniques of denial by using them in conversation. Teachers can sign up for a group code they can give to their class so students can easily and anonymously login to the game and start playing straight away.

Misinformation is a complicated, ubiquitous problem. Such a large, complex problem requires scaleable, interdisciplinary solutions. Using games to tackle misinformation brings together science, technology, and the arts. Psychological and critical thinking research points to inoculation as a way to neutralize misinformation. Cartoons and humor provide an engaging way to explain misleading fallacies. And online games are a powerful tool for delivering inoculation in an interactive, scaleable package—ideally suited for teaching critical thinking to students.

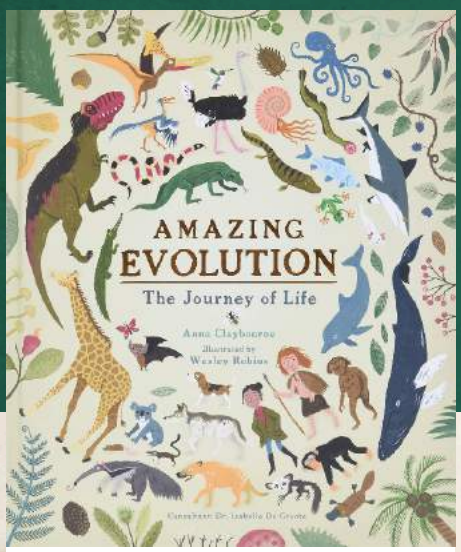
1. Hoofnagle, M. (2007, April 30). Hello Scienceblogs. *Denialism Blog*. Retrieved from http://scienceblogs.com/denialism/about
2. Cook, J. (2020). Deconstructing Climate Science Denial. In Holmes, D. & Richardson, L. M. (Eds.) *Edward Elgar Research Handbook in Communicating Climate Change*. Cheltenham: Edward Elgar.

Find more information about the author of this article here

My Favorite Children's Books about Evolution

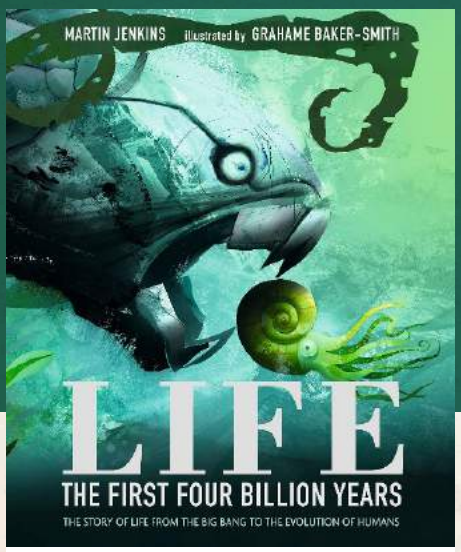
By Blair Lee

One of the most fascinating areas in all of biology is evolution. If you already agree with me, you are sure to love these books. If you don't agree with me, these books are sure to change your mind. I own them all, and my grandchildren and I have gotten much pleasure, knowledge, and use out of them.



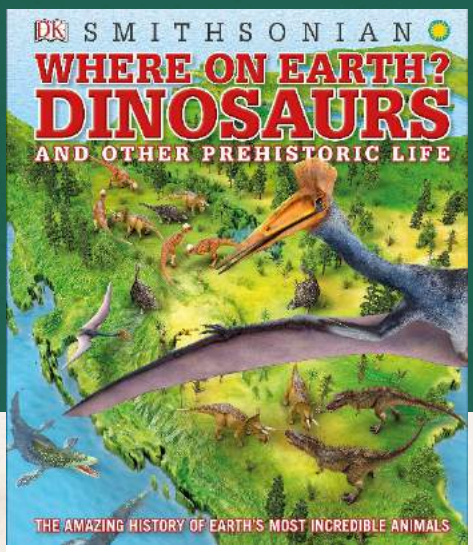
Amazing Evolution: The Journey of Life by Anna Claybourne

I did not expect to like this book quite as much as I do. Each of these books adds something the others do not. But if you are only going to own one, this is my top recommendation. It is comprehensive with a lot of information. It does a good job of parsing the information out in a way that is not overwhelming. This book starts with Darwin and Wallace and ends with predictions about future evolutionary events.



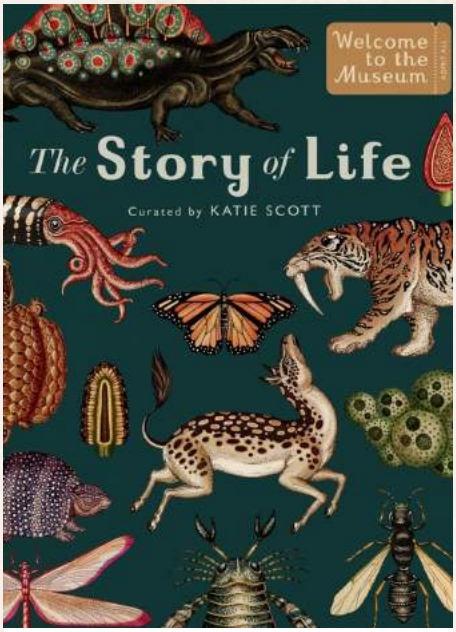
Life: The First Four Billion Years by Martin Jenkins

This book has the best cover! It starts with the formation of the Sun and concludes with the evolution of humans. It does not go into human evolution in detail, however. It takes a story approach through geologic time, that will appeal to learners who think chronologically.



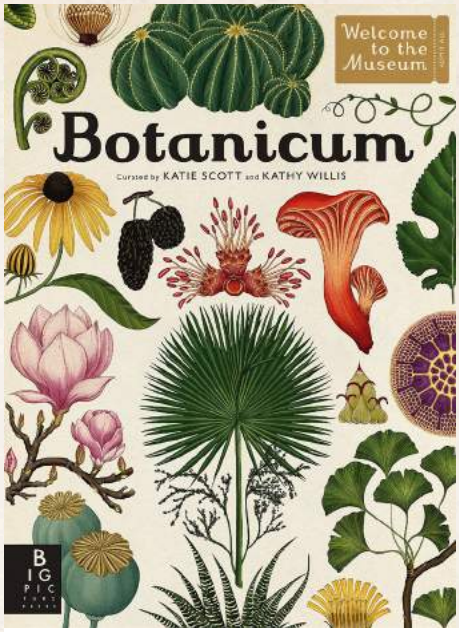
Where on Earth? Dinosaurs and Other Prehistoric Life from The Smithsonian

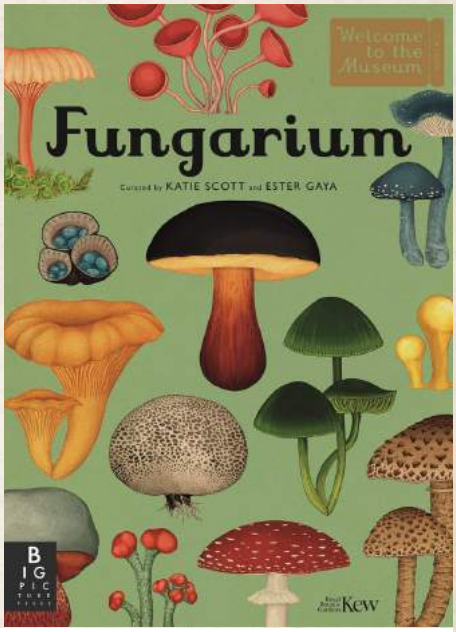
For a biogeographical look at the evolution of dinosaurs, this book is excellent. It is fascinating to learn about the position of continent, environment, and the non-dinosaurs alive at that time. It starts with the rise of the dinosaurs and ends after the dinosaurs. It is worth the purchase just to learn about the animals, like Titanoboa a 40-foot snake that lived 60 million years ago, that evolved soon after the extinction of all non-avian dinosaurs.



The Story of Life: Evolution by Katie Scott

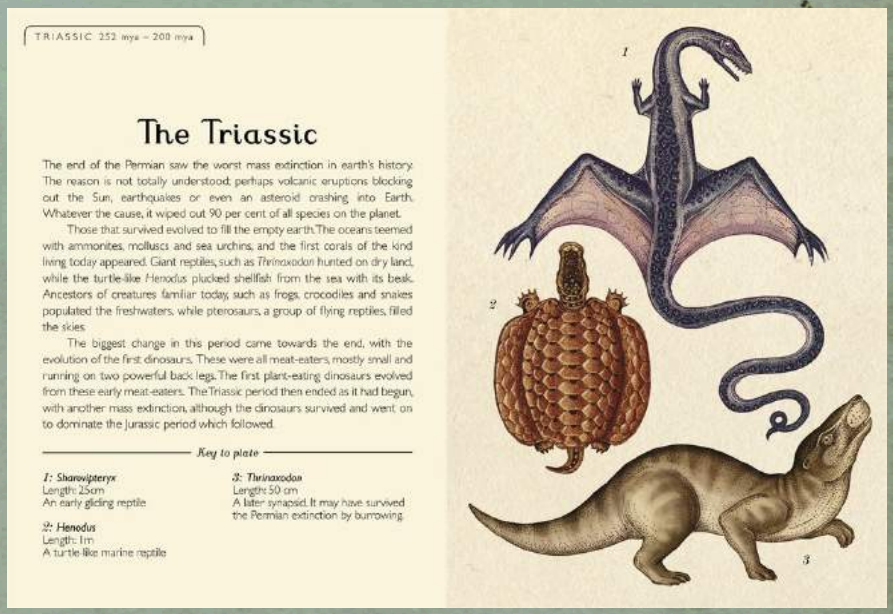
This book (along with *Botanicum* and *Fungarium)* are part of the "Museum Series." The content is excellent and extensive. It starts at the Precambrian and goes to *Homo sapiens.* The author takes a chronological approach. The text reads a lot like the cards in front of the exhibits in a museum. For learners who like to walk along and read that information, this is a good choice.





Botanicum by Katie Scott and Fungarium by Ester Gaya

These two books are the best books I have found detailing the evolution of plants, *Botanicum*, and fungi, *Fungarium*. They are informative and the research is excellent. They are also a part of the "Museum Series." Like *The Story of Life: Evolution* the text reads like that found at museum exhibits. Unlike *The Story of Life: Evolution* the information is simply not found in any other text I have seen.


TRIASSIC 252 mya – 200 mya

The Triassic

The end of the Permian saw the worst mass extinction in earth's history. The reason is not totally understood; perhaps volcanic eruptions blocking out the Sun, earthquakes or even an asteroid crashing into Earth. Whatever the cause, it wiped out 90 per cent of all species on the planet.

Those that survived evolved to fill the empty earth. The oceans teemed with ammonites, molluscs and sea urchins, and the first corals of the kind living today appeared. Giant reptiles, such as *Thrinaxodon* hunted on dry land, while the turtle-like *Henodus* plucked shellfish from the sea with its beak. Ancestors of creatures familiar today, such as frogs, crocodiles and snakes populated the freshwaters, while pterosaurs, a group of flying reptiles, filled the skies.

The biggest change in this period came towards the end, with the evolution of the first dinosaurs. These were all meat-eaters, mostly small and running on two powerful back legs. The first plant-eating dinosaurs evolved from these early meat-eaters. The Triassic period then ended as it had begun, with another mass extinction, although the dinosaurs survived and went on to dominate the Jurassic period which followed.

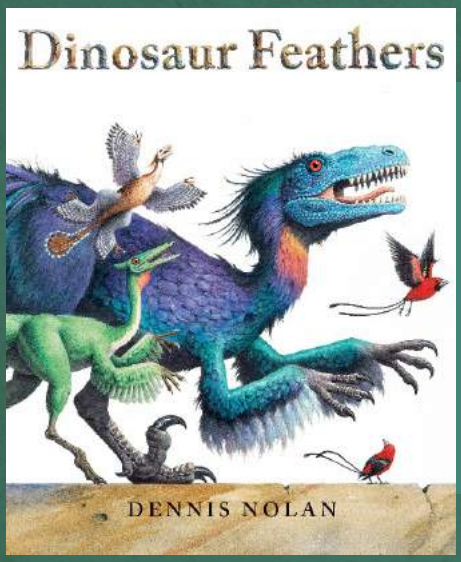
Key to plate

1: Sharovipteryx
Length: 25cm
An early gliding reptile

2: Henodus
Length: 1m
A turtle-like marine reptile

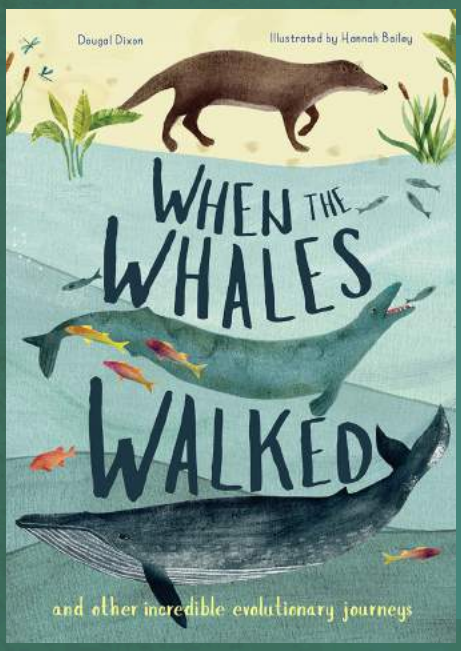
3: Thrinaxodon
Length: 50 cm
A later synapsid. It may have survived the Permian extinction by burrowing

Above: Sample page from *The Story of Life: Evolution* by Katie Scott



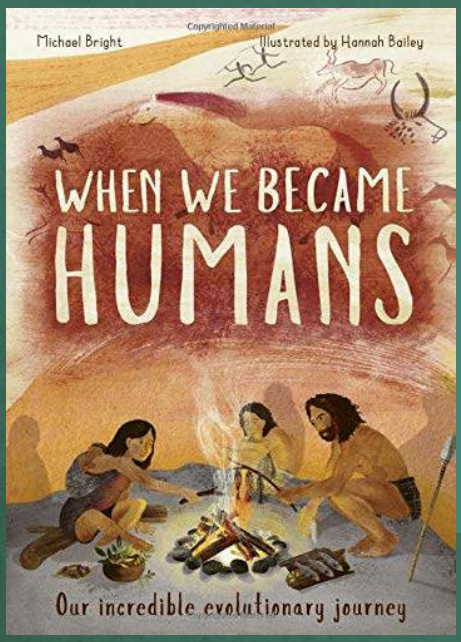
Dinosaur Feathers by Dennis Nolan

I love this book for young learners. The text is simple, and the illustrations are lovely. The focus of the book is on dinosaurs evolved and how all of them, except birds, went extinct. It has my favorite phylogenetic tree in it as well. It is a great introduction to the concept of evolution.



When Whales Walked: And Other Incredible Evolutionary Journeys by Dougal Dixon

This is another favorite book. It starts with an overview of evolutionary theory. This is followed with information about the processes that lead to evolution. After that, the book covers information explaining geological timelines, fossils, phylogenetic trees, and cladograms. This information alone is worth the purchase price of the book. The rest of the book details evolutionary events, putting into use the information covered in the first pages of the book.



When We Became Humans by Michael Bright

This book is a great introduction to human evolution. It extends beyond evolutionary theory, weaving anthropology and history throughout. It also hypothesizes about future evolutionary events of humans. It concludes with a nice phylogenetic tree for hominins.

Find more information about the author of this article here

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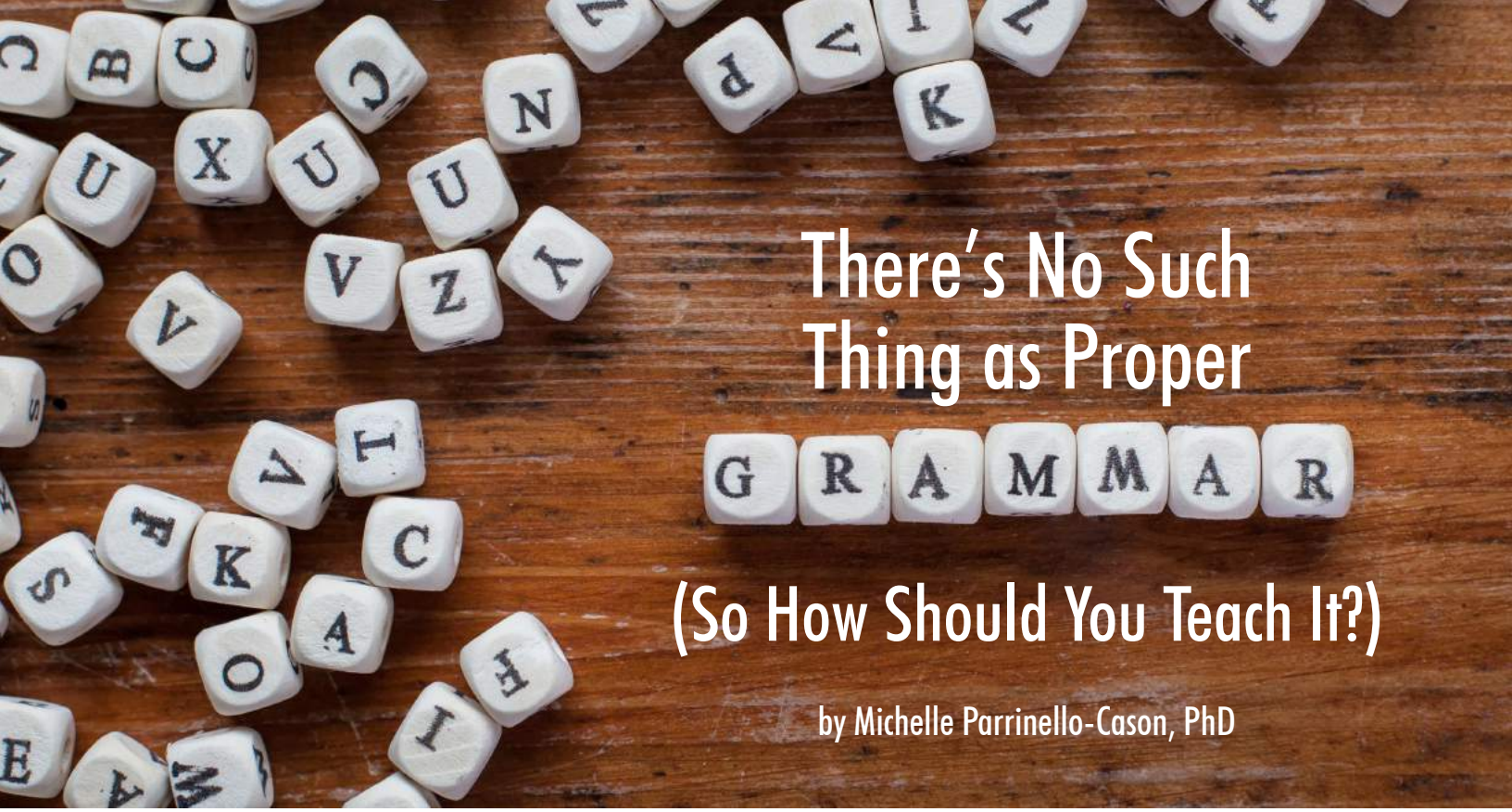


There's No Such Thing as Proper (So How Should You Teach It?)

by Michelle Parrinello-Cason, PhD

"Uh-oh! Better watch out for your red pen!"

That's a common response people have when they find out I'm an English teacher. For many people, English class was marked (literally) by the frustration of facing mysterious symbols scrawled across their work — symbols that indicated they had fallen short of expectations they didn't fully understand.

Unfortunately, grammar instruction often stands out in people's minds when they think of learning to write. Where should the comma go? What's a dangling modifier? How do I make the subject and verb in this sentence agree? Is that a sentence fragment?

Here's the thing many people were never taught in all those grammar drills and amidst all that spilled ink: there's no such thing as "proper" or "correct" grammar. It doesn't exist.

First, Some Vocabulary

Before I dig deeper into that (perhaps shocking) revelation, let's make sure we're all operating with some common vocabulary. It'll make the next part a lot easier.

- **Language -** The dictionary definition is "a system of communication used by a particular country or community." (This is trickier than it seems, as we'll see in a moment.)
- **Dialect -** A variation of a language particular to a region or social group.
- **Accent -** A particular mode of pronunciation of a language, often associated with members of a specific region, identity, or social class.
- **Idiolect -** An individual's unique language habits (kind of like your language fingerprint).
- **Discourse Community -** A group of people who share a common understanding and set of beliefs negotiated through their communication.

- **Grammar -** The system by which a language operates. It typically encompasses syntax (the order of words in a sentence) and morphology (word forms).
- **Mechanics -** Conventions of written language such as capitalization and punctuation.

What Language Do You Speak?

It may seem like a simple enough question to be asked what language you speak, but chances are that the answer is more complex than it initially seems. As opinionated (and sometimes controversial) linguist John McWhorter explains in *an article for The Atlantic*, we can't really even draw a clear line between a dialect and a language.

Colloquially, we use a metric of "intelligibility" to determine which it is. If the version of language that's being spoken can be intelligibly understood by other speakers of that language (even if it has significant differences in pronunciation, grammar, and conventions), it's considered a dialect. If it can't be, it's a separate language.

As McWhorter explains, though, this definition seems clearer in English because we have no other languages that are particularly close to our own. Someone speaking Swedish will likely be able to communicate with someone speaking Norwegian (generally considered separate languages) without either party needing to learn the other's language. Does this make them, then, dialects? If so, of which language?

Intelligibility also leaves a lot up to individual comprehension. I — born and raised in the Midwest — once travelled to New Orleans. A very nice couple was trying to give me directions to the best place to listen to music that evening, but I couldn't understand a word they said through their thick Southern accent that sounded unintelligible to my ears. After I had asked them to repeat it a third time, I was too embarrassed to admit I still couldn't follow, so I just nodded and smiled. Clearly, they understood me, but I didn't understand them. We were both speaking English, but their dialect was unintelligible to me. Did that make it a different language to me but not mine to them? See, I told you it gets confusing!

Teaching Grammar and Its Complexities

What does all this have to do with how to teach grammar?

Here's the thing: grammar doesn't need to be taught. (Hear me out!) We *all* internalize grammar because we're communicating creatures who learn the ins and outs of our languages through usage, not worksheets. You can see the developmental milestone at play when a young child who had

correctly been saying "I went to the park" suddenly starts saying "I goed to the park." Before, they were mimicking what they heard. Later, they had internalized the rule about adding -ed to make something past tense. Later still, they'll internalize the rule about the irregular nature of the verb *go* and adjust again — all without any direct instruction.

Why, then, are all those teachers leaking their red pens all over the pages? Obviously, there's something amiss!

It's because teachers aren't evaluating whether students' writing has *a* grammatical logic. They're evaluating whether it has *the prescribed* one. To be more precise, they're comparing the written work their students produce to Standard Academic English.

What is Standard Academic English

Standard Academic English (SAE) is an artificially constructed set of English language conventions typically used in academic and business settings. These conventions are literally no one's natural way of speaking. Some people, however, are born into families with practices

closer to SAE than others. These individuals have an advantage in the classroom because they don't have to vary their language as much (called code switching) to meet the norms of SAE.

Where did SAE come from? It's been a work in progress, but the roots of today's SAE date back to the 15th and 16th centuries. By no coincidence, these dates align with the introduction of movable-type printing to Europe. The increased access to writing meant that 1) more writing was being produced and 2) more (and different types of) people were able to produce it. This led to a need for standardization in things like punctuation, spelling, and capitalization to make reading documents easier. (If you've read any old works in their original forms, you'll often notice inconsistent spellings and capitalizations that seem random. Often, these texts demonstrate a time when the standards were still in flux.)

That sounds reasonable enough, right? We had this new, revolutionary technology, and we had to create some standards to make it operate most effectively.

Unfortunately, that's not the full story.

The Privilege and Oppression in SAE

When it came time to decide what language practices were "standard," there were *plenty* to choose from. English — due

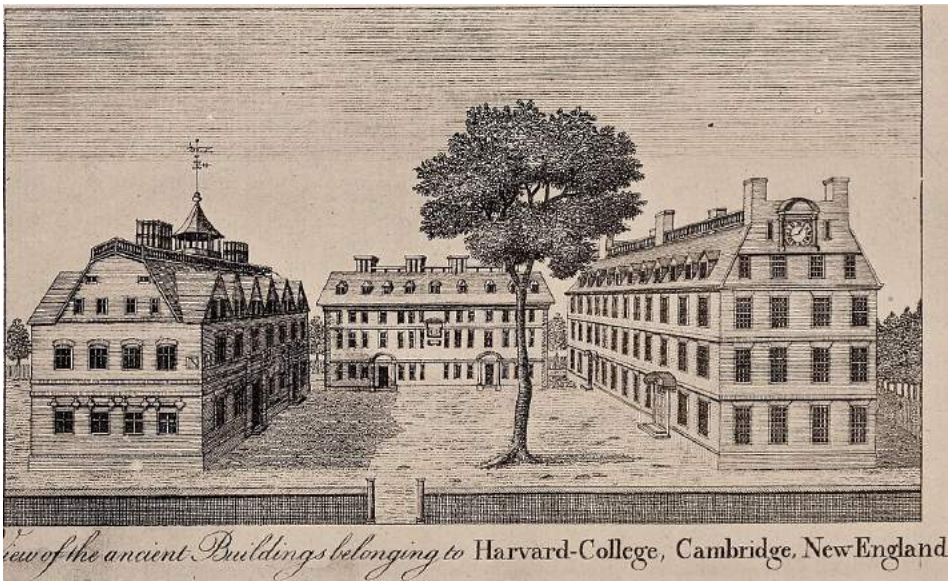
in no small part to its history of colonization — has a rich history of dialectical variety. People speak English in *many* different ways.

We didn't choose at random, though. We chose the practices of those who already held the most power, and their power was further codified into the new standards. If your way of speaking and writing was suddenly *the* way of professionally speaking and writing, you can see how it would be more than a little advantage when it came to legal documentation and official government work. Soon, those standard language practices extended to all things associated with education, and studying everything from science to philosophy to literature was easier if you used the standard practices.

SAE and American Education Practices

Let's jump ahead in history and move from Europe to America. It's the early 1800s, and Yale (founded 1701) and Harvard (founded 1636) are the two most prestigious institutions of higher learning in the nascent country. These institutions primarily used classical curricula, and there was no specific writing class because the people who were granted access to these elite spaces were all versed in the same basic communication practices due to their (aristocratic) background.

Then, in 1874, Harvard did something radical. Under president Charles Eliot, Harvard moved from the classical curriculum to an elective system. Simultaneously, they expanded access on a meritorious system rather than one based on aristocratic privilege.



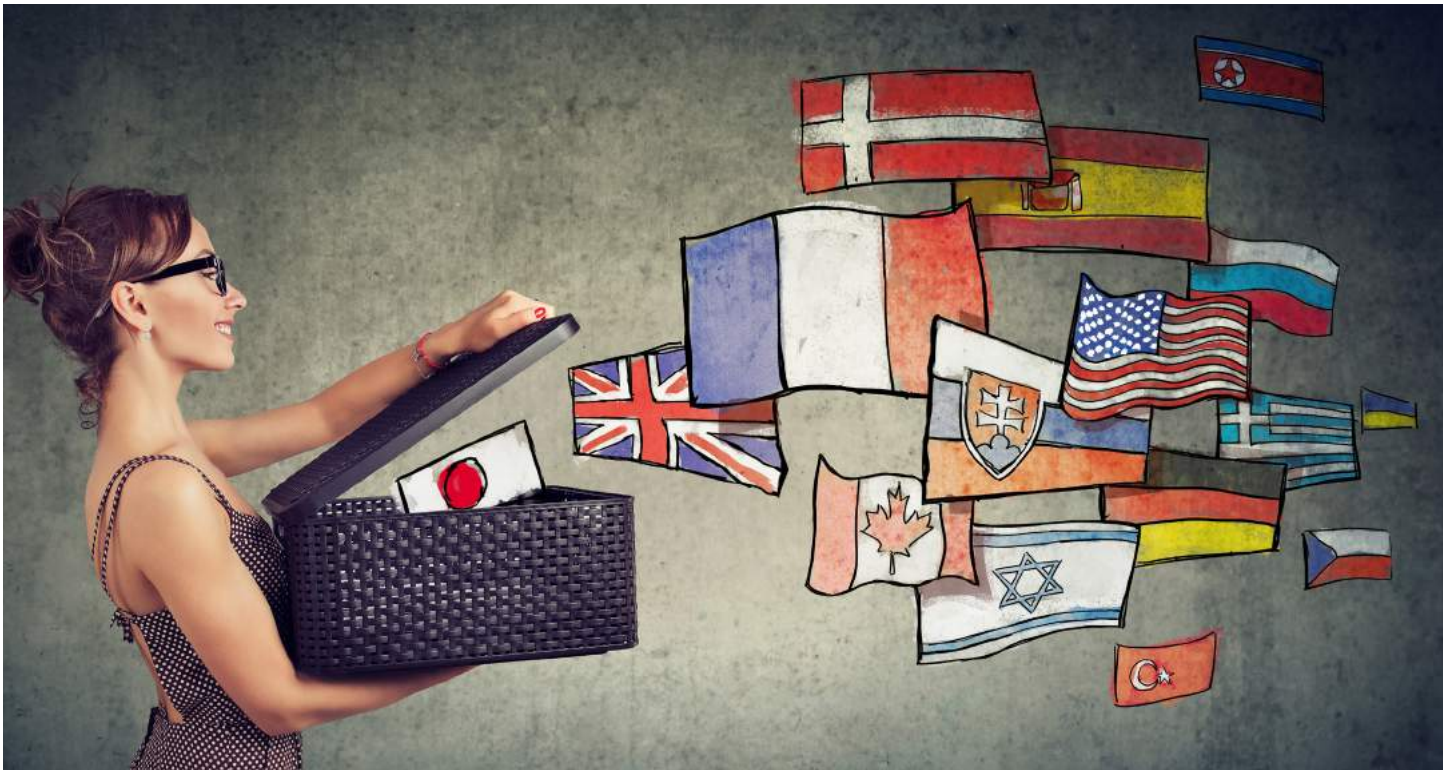
Again, that sounds pretty good, right? More people had access to education, and the entire landscape shifted in response. Many of those changes are heralded as positive, but there is always a pendulum swing, a push and pull of for

SAE as Gatekeeper for Education

With Harvard's meritorious admissions came gatekeeping mechanisms. After all, if the doors would be open to just anyone who could "earn" their entry, how would we know who deserved it? The practice ushered in a new entrance exam and, with it, a new essay entrance requirement.

Once these new (non-aristocratic) students started entering the academy, the handwringing began. These kids don't know how to write! Of course, they were versed in a completely different set of language conventions, so the now-ubiquitous "English 101" was invented as a way to get those who hadn't grown up speaking something close to SAE up to speed.

That might have been well and good, but it had the troubling habit of providing "proof" that



some students didn't belong. It also gave rise to a whole new way of thinking about writing instruction.

Current-Traditional Rhetoric Practices

With this new influx of students came a new way of teaching writing. It was dubbed "current-traditional rhetoric" and it had a marked increase in the focus on form and style (rather than substance and content).

This new method brought forth a market for textbooks that focused on "correct" grammar and the "modes" of writing, practices that still permeate many of our current curricular options.

As Sharon Crowley (a rhetorician and scholar) explains, we can't ignore current-traditional rhetoric's real aim: "its effort to kill off individual voices." Students' prose was "correct" when it was scrubbed clean of any markers of difference. It also had the distinct impact of focusing on *how* students communicated rather than *what* they had to say. Many writing assignments became devoid of context, and students learned to mimic not only the prose of the established norms but also the ideas.

These current-traditional practices would have a long, long run in American classrooms, holding strong until the 1960s and 1970s (and, in some circles, still clinging on today).

The Students' Rights to Their Own Language (SRTOL) Movement

In 1969, the City University of New York (CUNY) implemented an open admissions policy. At the same time, community colleges were becoming increasingly popular across the United States. These institutions had intentional, mission-codified aims to provide education to everyone.

Immigrants, women, economically disadvantaged students, and students of color began to attend college (in these open admission institutions and elsewhere) in record numbers. They brought with them dialectical challenges to the status quo.

Cue the handwringing . . . again. Just like it had a century earlier, the influx of different kinds of students caused many to panic over the "weakening" of academic standards – particularly writing. They pointed to grammatical "errors" in the way these students spoke and wrote as evidence.

Many attempts to remediate writers grew out of these conditions, but so too did a countermovement. The Students' Rights to Their Own Language movement saw a group of educators insisting that their students were perfectly capable communicators who had every right to bring their own language practices into the classroom.

Their resolution was adopted by the Conference on College Composition and Communication (CCCC) in 1974 and reaffirmed in 2003, 2006, and 2014.

In other words, the foremost group of scholars and educators in English instruction in America has made it abundantly clear for nearly 50 years that accepting varieties of English in the classroom is the best educational practice.

At the insistence of these scholars (many of whom were people of color and from marginalized discourse communities themselves), research into varied linguistic practices demonstrated quite clearly that what was often interpreted as an "error" in SAE was actually a logical, rule-following variation on language. Many grammatical constructions in what came to be known as Black English, for instance, have been found to follow grammatical constructions similar to those in West African languages.

To sum it up, Standard Academic English is *one* way of speaking and writing in English, but it's not inherently superior to other ways of doing so.

So What Do I Teach Then?!

Alright, the history lesson was interesting, but you have a lesson plan to put together. What, knowing all this, do you teach your kid?

It would be a disservice to tell our learners that SAE conventions don't matter and they don't need to learn them. There is no denying that these conventions are still held up as expectations, especially in places like job applications, interviews, court appearances, legal documents, and — of course — school essays.

We also do them no favors by pretending that these conventions are the only way to communicate or that every piece of writing they produce needs to follow them. What if they're writing a podcast for an informal audience where stilted academic conventions are going to sound stodgy and out of place? What if they're writing a children's book where they'll be inaccessible? What if they're writing dialogue in a short story?

Language conventions are choices, and we empower our students to have access to the most choices possible. That includes SAE, but it doesn't end there.

The absolute best practice for teaching writing with an eye toward equity, honesty, and effectiveness is to treat SAE like what it is: a set of arbitrary standards that a lot of people use.

At the end of the day, we want our learners to be effective communicators, and that means having the ability to switch between multiple language varieties to address a wide set of audiences and needs.

Some Tips for Teaching Writing

I wanted to end with some practical, immediately applicable tips you could take into your own homeschooling practices:

- **Focus on the higher order concerns of writing *first*.** Don't teach your learners that writing is primarily about form and style. It isn't. It's about *ideas*. Learning to have their own voice, to put ideas together in a logical order, to support opinions with evidence gleaned from credible sources – those are much more important lessons.
- **Provide both formal and informal writing opportunities.** Some assignments should go through the full writing process to come out as polished, proofread pieces that align with SAE grammar conventions, but not all of them need be this formal. Provide plenty of opportunities for writing that have fewer expectations. In general, formal writing assignments should make up only about 20-30% of the writing activities completed for any particular class or curriculum. In other words, for every hour they spend proofreading and polishing, make sure they've been given three to four hours to write without such confines.
- **Be honest about SAE and why it exists.** Let's end misplaced grammar snobbery right now, in our own homes and with our own educational practices. There's nothing inherently superior about SAE. It's just a different flavor of language. Teach it that way.
- **Focus on one "error" at a time.** All that said, we do want our learners to be able to adeptly navigate written language expectations as they move forward in academic and professional spaces. When we see errors, we can panic and stock up on worksheets and grammar drills. Take a breath. Focusing on one or two of these SAE-defined errors to learn at a time and in the context of their own writing is much more effective. They'll layer them on as they continue to read and write.
- **Read texts written in SAE.** Reading is one of the best tools we have for internalizing grammatical and mechanical conventions, but a lot of works aren't written in SAE (proof that the standards aren't really as "superior" as we claim they are). As your learner ages, make sure you're including some academic texts (such as academic research articles and academic books) that will help demonstrate SAE conventions "in the wild."

Additional Resources

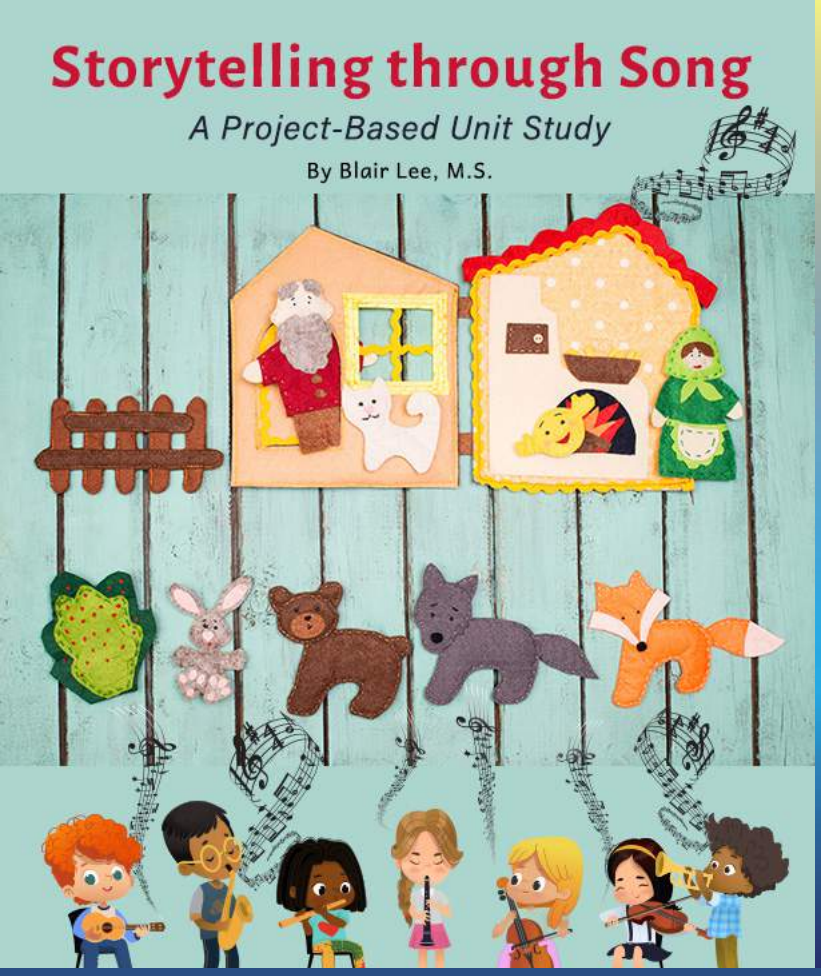
If you'd like to learn more about the concept of SAE and different language varietes (or share it with your learners), I recommend the following resources:

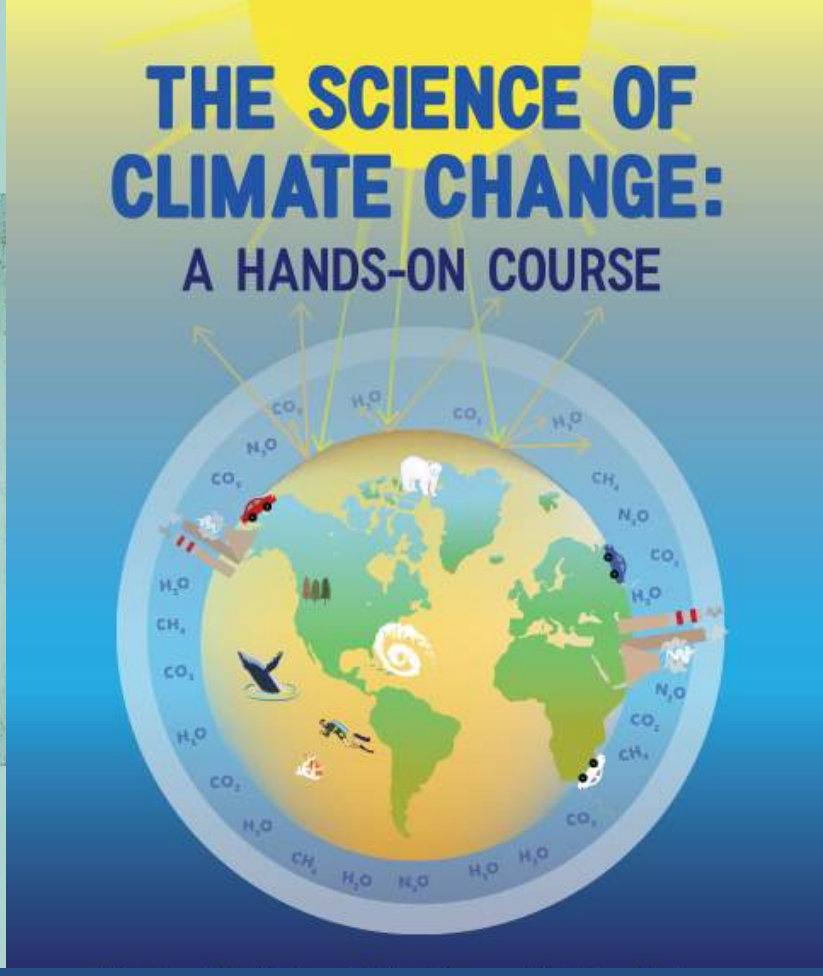
Do You Speak American? (PBS)

3 Ways to Speak English by Jamila Lyiscott (video)

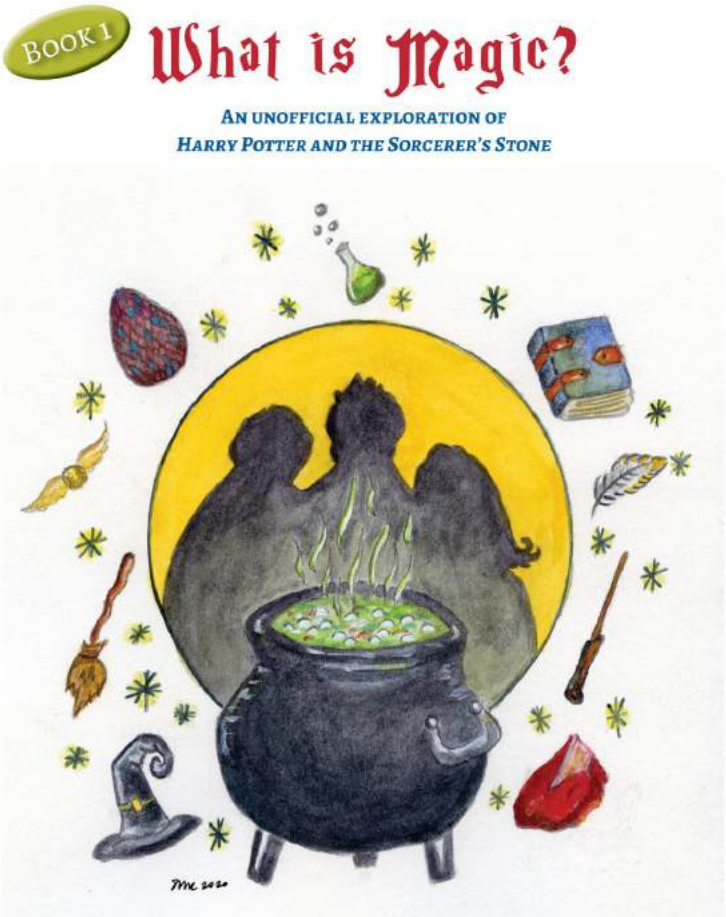
Students' Right to Their Own Language (full text of resolution-PDF)

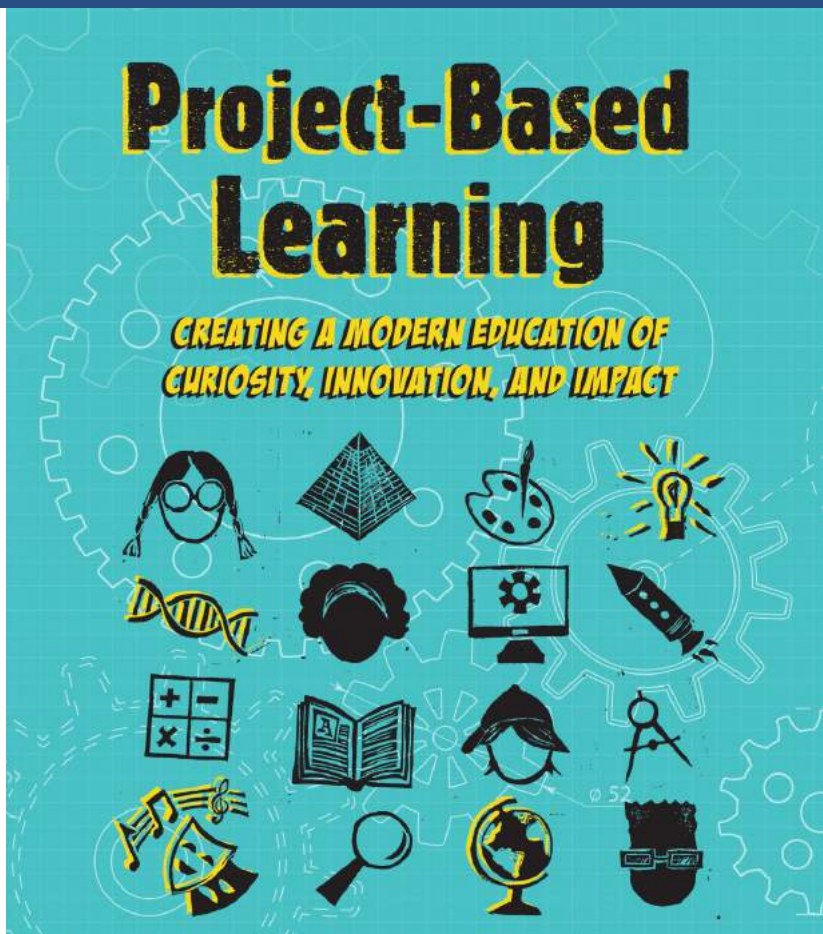
Find more information about the author of this article here





Innovative Academic Materials from SEA Publishing





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What is a Secular Homeschool Curriculum?

By Blair Lee, MS &
Samantha Matalone Cook, MAT

It can be challenging to find secular curricula and programs for your homeschooled children. To help, SEA Homeschoolers developed these definitions explaining what constitutes secular academic materials. Read on and be sure to connect with SEA Homeschoolers today!

Secular Homeschool Curriculum: Science

Secular science curricula and programs use empirical evidence-based information from peer reviewed research. Secular science curricula present the accepted facts, principles, models, and theories explaining how the natural and physical world works as recommended by a majority of practicing experts in that area of science. They do not incorporate religious philosophy into the curriculum or program.

In addition, secular academic homeschoolers do not endorse or use science curricula and programs that politicize science topics. This politicization is in effect propaganda. It is unacademic, inappropriate, and irresponsible to misstate science facts, principles, models, and theories for political gain.

Science understanding is constantly being refined and added to as new research results become available. Scientific research builds on what is already understood in a way that helps us better understand how the natural and physical world works. Secular science curricula and programs do not present science as static. Nor does it rely on outdated data and information.

Secular Homeschool Curriculum: History

Secular history curriculum is evidence-based using research backed by historical scholarship. Secular history curriculum does not include historical theories or narratives without evidence and context. Interpretations or conclusions are supported by credible sources and offer both a broad and specific view of information.

In addition, secular academic homeschoolers recognize the importance of using history materials that are intersectional and updated to modern historiography. It is essential to an unbiased approach to history lessons that they include voices and perspectives missing or excluded from past historical narratives.

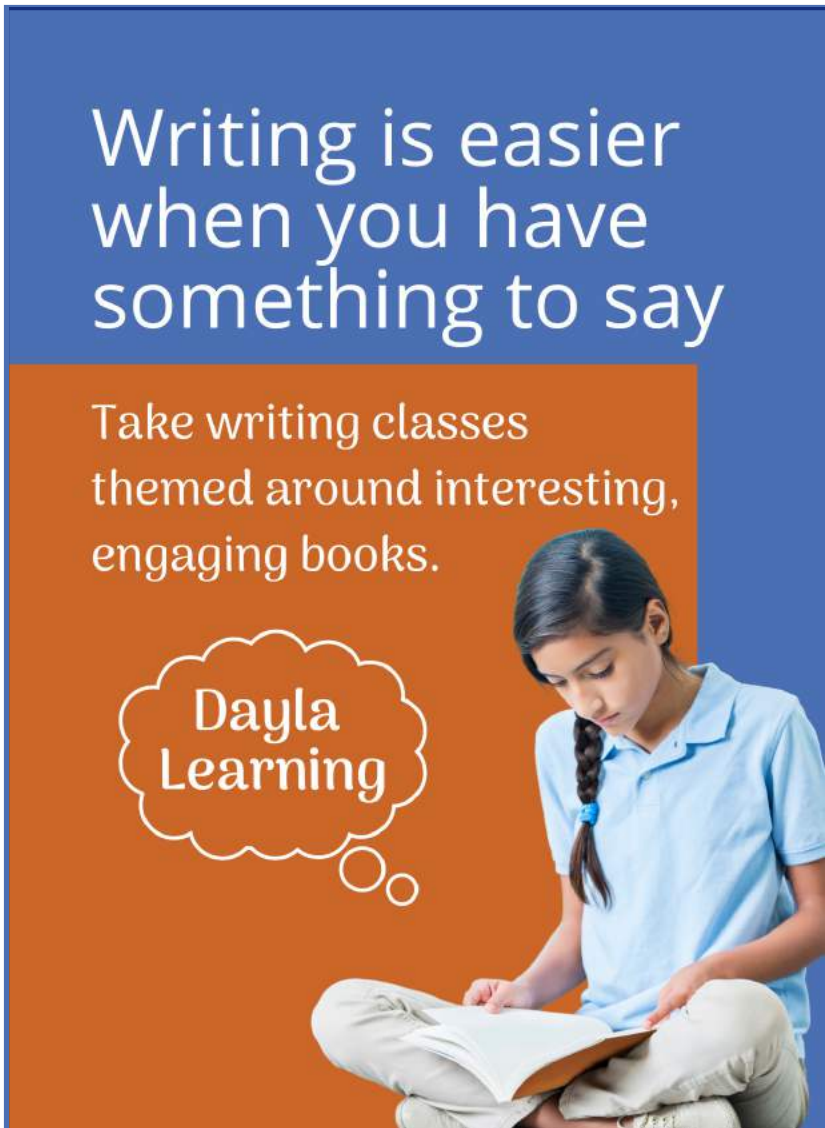
Secular history curricula can and often will discuss and analyze the influence and impact of religions and religious belief throughout history. However, secular history curriculum does not posit, present, or endorse religious beliefs, myths, texts, philosophies, or teachings as factual. There are two common ways non-secular curricula present religious beliefs in this way: They can present religious texts as historically factual accounts and/or they can present historical events as divinely influenced.

Because the subject of history is a constantly evolving body of work that is changed, revised, or added onto as new evidence becomes available, secular history curriculum should never present the story of the past as static or complete.

Other Disciplines for Secular Homeschool Curriculum

History and science are the two most problematic academic disciplines when it comes to finding curricula and programs for secular homeschooling parents. Other academic disciplines are considered academically secular if they do not incorporate or include religious sentiments, homilies, or readings except where academically relevant. For example, a literature course that includes Milton's Paradise Lost, John Steinbeck's The Pearl, or Dante's Inferno could be part of a secular course of study if the purpose for its inclusion is strictly academic.

Find more information about the authors of this article here



Using Games in Learning: Gamification, Gameschooling, & Game-as-Text

By Dr. Sabrina M. Weiss

Games are such a popular outlet for many of us, and they have also become popular ways to learn! But there are many different terms that people use, and it can feel overwhelming to get information on what types of games or uses of games there are out there. Plus, we only have so much time in a day to research this!

To help give you a starting point, I will define and discuss three types of learning with games that each offer different benefits. These are not the only types of learning with games that exist, but are three broad categories that are distinct in application and useful to think about for an educational toolkit. An individual game or approach could even fit more than one category!

The three types of learning with games I will discuss are: Gamification, Gameschooling, and Game-as-Text.

Gamification: Adding a "game layer" onto learning

Gamification can be defined as "the process of defining the elements which comprise games, make those games fun, and motivate players to continue playing, then using those same elements in a non-game context to influence behavior." This definition emphasizes that many experts distinguish between "gamification" and "game-based learning."

"Gamification" is usually meant to describe adding a layer of game goals and rewards on top of a learning environment. Often, the game layer is used to motivate and encourage students to think in goal-oriented ways that focus on steady improvement. For example, students may earn "experience points" by doing assignments, and when they reach a certain number of points, they can "level up" a pretend character by giving them a cool fighting skill or a magic item, as in a D&D game. A missed assignment may mean a loss of experience points, or be represented as an injury to the character, making them have to sit out of a future simulated adventure. But gamification can be used in other ways as well.

Jane McGonigal is a prominent advocate for harnessing the benefits of video games to improve individual lives and societies in general. She shares her personal experience in recovering from a devastating concussion using video games to help her keep a positive

attitude and as part of cognitive therapy. Gamification can be an effective way to encourage helpful repetitive tasks that are difficult or frustrating (as one would find in physical or cognitive therapy, for example) and to build better habits over time. It can also help a person to visualize progress towards a longer term goal, especially when it is hard to notice gradual gains.

Gamification can be an effective way to increase short-term motivation in learning activities, especially in students who already identify as gamers by breaking larger goals into smaller tasks and rewarding consistent activity. However, researchers like Dr. Sebastian Deterding emphasize that too much reliance on gamification can hinder development of intrinsic motivation by making learning activities tied to external rewards. In other words, a learner may focus more on the game layer and its rewards rather than developing a sense of intrinsic value of the learning activity itself, which can lead to less effective learning in the long term.

Based on this, gamification should be considered a good way to temporarily motivate or engage a learner, or be used as a way to transition into new habits that promise intrinsic rewards or satisfaction later. For example, when doing a garden project, using gamified "daily quests" at the start can help keep a learner motivated to do the preparation work for a garden plot - weeding, raking, digging, planting seeds, watering. But once plants start sprouting and growing, there will be more naturally occurring, intrinsic rewards for the learner as they get to see the plants grow and develop, so gamification could be phased out or kept just for some routine care tasks that aren't as fun (like weeding).

Gameschooling

Gameschooling is generally defined as "the use of games to learn educational skills." There are many potential benefits to using games to learn as a family, including building interpersonal skills, giving "brain exercise," framing learning as fun, and supporting a positive family culture.

While gameschooling usually refers to tabletop or board games, there are educational games and games with educational content available in many formats, from cards to board games to electronic games. Gameschooling even is present at the forefront of virtual reality (VR) and augmented reality (AR)!

Dr. Mina Johnson-Glenberg heads both a research lab at ASU and a company called Embodied Games that uses VR and AR in educational ways. There are several advantages that she cites to using games and technology for learning: invisible processes, like molecular reactions, can be made visible and tangible to learners, learning through VR/AR adds bodily engagement to the usual visual and auditory inputs, and VR in particular can promote empathy when using an avatar who is different from the player. For example, Dr. Johnson-Glen-

berg's lab developed a VR butterfly catching game that teaches about natural and artificial selection processes - by catching more of one type of butterfly early on, the player influences the population distribution of later generations of butterflies, which sometimes increases the difficulty of the game.

Many homeschoolers and other learning providers value the different learning environment that gameschooling can provide. Especially for learners who struggle with more traditional educational methods, learning through games can be a welcome change of pace that eases pressure and engages player-learners in more Flow.

There are also many providers and companies who are interested in offering gameschooling options to families and organizations, making this a growing field from which to choose. However, gameschooling may not be for everyone, or may not be something that is right for your family in every situation. Because gameschooling tends to rely on games that were developed with learning in mind, it can become time-consuming and expensive to research and obtain games for every topic. And while learners who already enjoy playing games may thrive in such an environment, some learners may not enjoy games as much (especially if there is too much emphasis on competition or performance); experienced gamers may also not enjoy educational games as much as their recreational games, and may prefer to keep learning and recreation separate.

Game as Text

A game, as a piece of created media, can be used like a book, movie, TV show, or other cultural artifact as a starting point or guide for learning. Just as we can begin an exploration of a culture, a society, or a time period by reading a book, so too can we do so with a game that has a developed setting. We can also use a game as an opportunity to open conversations about ethics, values, and choices by reflecting on how we play the game or how characters in the game make decisions, just as we can discuss the choices and values of characters in a book or movie. Third, with games that have a story, we can examine literary elements like plot, foreshadowing, literary devices, protagonist, antagonist, conflict, etc. Some games have dialogue and characters, while others may tell a story in a different fashion, which offers opportunities to compare/contrast how stories can be told through different media.

Games bring another dimension of engagement through agency and choice. Not only does this active participation in the "text" of a game enhance the learning experience, but it also introduces what

Ian Bogost describes as a "procedural rhetoric": "videogames have a unique persuasive power that goes beyond other forms of computational persuasion. Not only can videogames support existing social and cultural positions, but they can also disrupt and change those positions, leading to potentially significant long-term social change."

While Bogost focuses on electronic games, tabletop games also offer these dynamics. *Monopoly*, for example, despite originally being created to critique monopolistic practices, usually encourages greedy and aggressive play that upholds the most negative emotional aspects of capitalism. *Settlers of Catan*, despite being focused on seemingly innocuous activities like resource gathering, trade, and building, has led to so much strife that groups of friends had to stop playing games together (or called an armistice and agree to never play *that game* again). Games, both tabletop and electronic, also reflect ethical values and cultural assumptions by the creators and can be a source of data to self-reflect on one's own participation in dominant cultural practices.

Teaching students this type of critical engagement brings the added benefit of equipping them with tools to approach future recreational games with a thoughtful and reflective mindset.

In the article,"Games as Text and K12 Social Studies", Jeff Mummert shares some exciting ways to use games as text in the classroom and adds extra dimensions to learning activities by challenging students to design their own games or to create modifications of existing games to bring more social and historical realism to games. Projects like these offer opportunities for students not just to demonstrate learning (and do the research needed to be "experts" on material), but also to draw inspiration from and transform game mechanics from their favorite games as a way to consider delivery of content as well.

Conclusion

Games, whether tabletop or electronic, can be powerful tools to enhance learning, and many people are excited about the possibilities. Because there are so many ways that you can use games to learn, it's important to think about your goals and the needs of your learner and seek out the right types of resources. Whether you want to use gamification, gameschooling, or game-as-text (or all three!), the possibilities are endless, and they all bring fun and engagement along with great learning!

Find more information about the author of this article here

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Recipe: Pizza Pi(e) Dough

By Sydney Miller Milbert

Pi Day is March 14 (3/14) and is the yearly celebration of the mathematical sign pi. Pi is an irrational number that is commonly estimated as 3.14, but actually continues to infinity. Pi is also the constant ratio of a circle's circumference to its diameter and why many Pi Day celebrations revolve around circle-shaped food.

I encourage you to incorporate as many circle-shaped foods into your day as possible, and give this easy pizza dough recipe a try! I've been making it for years and it is a family favorite. It's also a great starting recipe for kids (and grown-ups) making yeast-raised dough for the first time.

Please note that this recipe calls for **Instant Yeast**. This means you can add it right to your flour and other ingredients without dissolving it in water first, as you may have seen or tried in other recipes that use active dry yeast. Using **instant yeast** makes the recipe really easy!

The preparation time of this dough is very flexible. You can make it the day you intend to use it or the day before and refrigerate it. You can even make it significantly in advance, freeze it, and pull it out of the freezer to defrost and proof when you're ready.

Yield

2 medium-large pizzas or
8 single serving size pizzas

Ingredients

- ☐ 4 c. all purpose flour
- ☐ 1 tsp. Kosher salt
- ☐ 1 tsp. instant yeast
- ☐ 1 ½ c. warm water
- ☐ Olive oil for the bowl and your hands

Tools/Equipment needed

- ☐ Measuring cups and spoons
- ☐ Stand mixer with a paddle attachment
  Alternative: You also can do this recipe by hand with a large bowl and wooden spoon; then knead by hand on a floured cutting board.
- ☐ Cutting board
- ☐ Extra bowl(s) for proofing
- ☐ Baking sheets
- ☐ Parchment paper (I recommend the reusable kind!)
- ☐ Clean, damp kitchen towel
- ☐ Oven
- ☐ Oven mitts or potholders

INSTRUCTIONS

Prepare the Dough

1. Put flour, Kosher salt, and instant yeast in the bowl of your stand mixer. (If you are making this recipe without a stand mixer, put these ingredients in a large bowl.) Mix on low speed (or slowly by hand with a spoon) to combine.
2. While the mixer is running on low speed, or while stirring, pour in the warm water. Mix until loosely combined.
3. If using a stand mixer, increase the speed to low-medium and let run for 10 minutes to knead the dough. You do not need to switch to the dough hook (less dishes!). If mixing by hand, transfer your dough to a floured cutting board and knead for ten minutes. You want your dough to be a nice smooth stretchy ball.
4. Split the dough. Remove the dough from the paddle attachment and/or your mixing bowl and place on a floured cutting board to split. If you've just kneaded your dough by hand, your dough should already be on the cutting board. You can use a pastry cutter or butter knife to help you split the dough.
    - If you would like to make two medium-large pizzas (these will fill a standard baking sheet), split the dough into two equal balls.
    - If you would like to make individual size pizzas, split the dough into eight equal size balls.
5. Place your dough into separate bowls oiled with olive oil.

Rest and Rise (Proof) the Dough

6. If you plan to make pizza within 2-3 hours, cover the dough with a clean, damp kitchen towel and leave the dough out in a warm spot to rest and rise until you are ready to use it.

    - Note about Advance Preparation:
        - If you plan to make the pizza more than 3 hours after dough preparation, cover your bowl(s) with a well-fitting lid and place the dough in your refrigerator or freezer. If refrigerated, pull the dough out of the refrigerator about 2-3 hours before you are ready to make the pizza and place in a warm spot to rest and rise. You can leave dough in the refrigerator for about 24 hours.

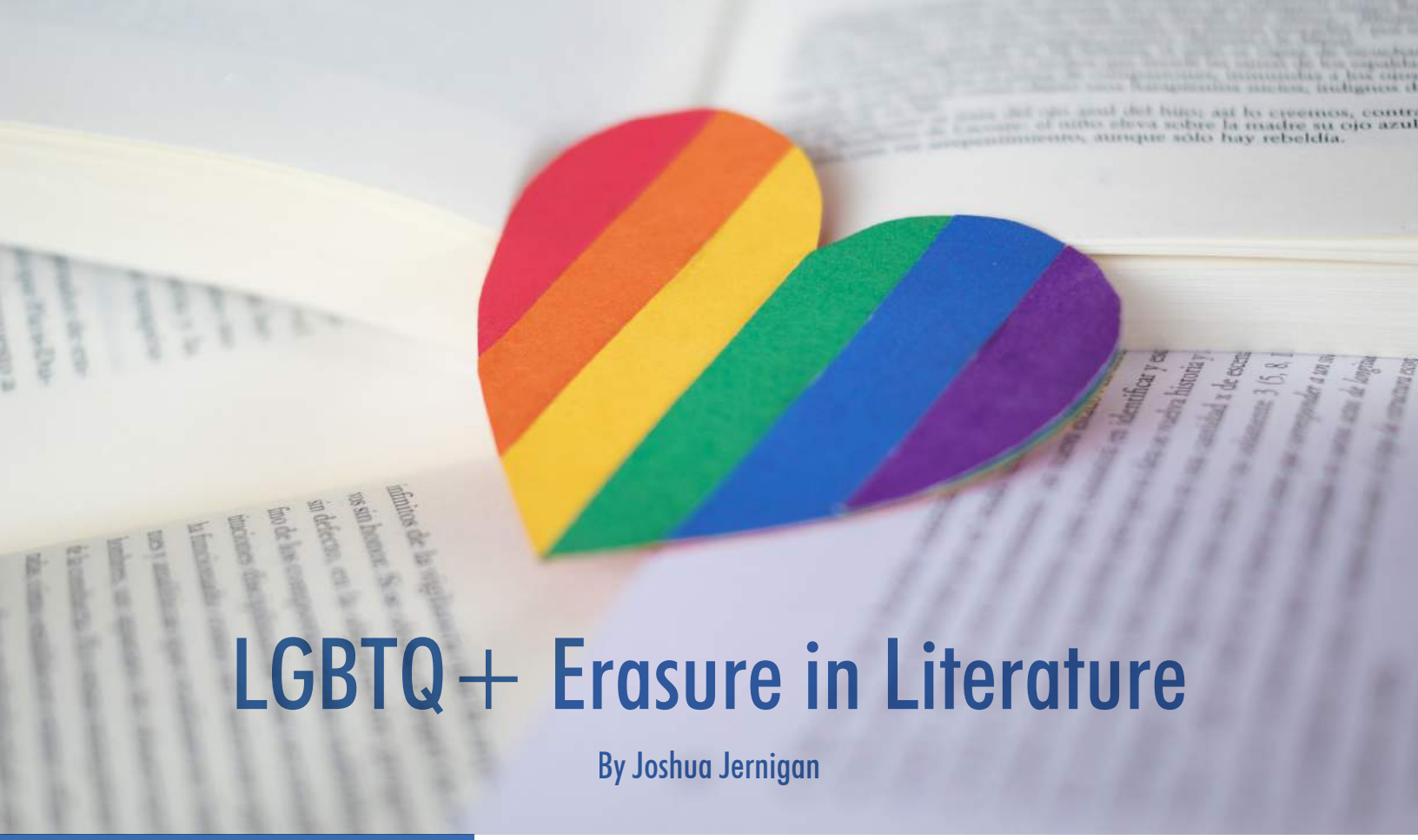
- If you plan to make the pizza more than 24 hours after dough preparation, cover your bowl(s) with a well-fitting lid and place the dough in the freezer. To defrost, pull the frozen dough out of the freezer and place in the refrigerator the night before you plan to make the pizza. Then, pull the dough out of the refrigerator 2-3 hours before you are ready to make the pizza and place in a warm spot to rest and rise.

7. You will know your dough is ready to use when it is very bubbly and has about doubled in size.

Make the Pizza!

8. Preheat your oven to 500°F.
9. Prepare your favorite pizza toppings.
10. Shape the dough
    - Prepare your baking sheet by placing parchment paper on it.
    - Lightly oil your hands with olive oil so you can handle the dough without sticking.
    - Pull the dough balls out of the bowls and begin to flatten and stretch it in your hands. If you are not comfortable stretching it in your hands, that is okay. You can press and stretch it directly on your baking sheet.
    - On the baking sheet prepared with parchment paper, press and stretch your dough into place.
    - If your dough was split into two large balls, each of these will fill a standard baking sheet. Individual size pizzas will be about 6-8 inches in diameter.
11. Top your pizza how you like it best!
12. Bake at 500°F for 10 minutes. Using oven mitts, pull your pizza out of the oven and carefully transfer to a cutting board. (You'll know it's done because it will slide right off the parchment onto your board. If it sticks, put it back in the oven for another minute or two and try again.)
13. Allow to cool for about 5 minutes before slicing.
14. Slice, serve and enjoy your pi(e)!

Find more information about the author of this article here



LGBTQ+ Erasure in Literature

By Joshua Jernigan

"Sisters?" "We're Close!" This line from the award winning broadway musical RENT is iconic. The song, La Vie Boheme, displays the true diversity of the main characters and their identities. This part of the song, where Maureen and Joanne kiss in a restaurant, is meant to highlight something called queer erasure.

Queer erasure is a huge problem in the teaching of literature. What is queer erasure? It is often defined as the removal of all aspects of LGBTQ+ identity from authors and characters. This can include posthumous removal of queer identity such as the editing of the works of Emily Dickinson or simply not mentioning an author or character's LGBTQ+ identity while educating about them, such as Langston Hughes never being mentioned in education as a gay man during the Harlem Rennisance. These simple examples of queer erasure show an endemic problem we encounter in education and beyond.

Emily Dickinson is a really great example of complete erasure of her sexuality. Her work was relatively unknown until after her death. She published only 10 poems in her lifetime, but there were almost 1800 poems written by Emily. Her sister sought help to bring the poems she found to publication. This publication, however, required some changes. They removed all instances that could be thought of as lesbian from her writings. They changed the way her markings were made and changed all poems that spoke of a "she" or "her" to a "he" and "him". This fundamentally changed what information we began to know about the author. This created an idea that Emily was writing about a male lover, or her poetry was made for women to read about men they once loved. Her unedited work, however, leads to a very different picture of Emily Dickinson, one that is not taught about in schools where her poetry is well loved.

This is just one blatant example of queer erasure. It can be more subtle than this, however. If we look back through other times in history we see queer erasure in a lot of places. For example, Lord Byron from the late 1700s to early 1800s. He was well known for his affairs with women, however there is a long history of time that he was having relationships with men. Those men are often described as "Friendships" and "companions", but never in terms of his relationship. It's also worth noting that people often bring up his public relationships with women as a way to say he couldn't be gay. And that's correct. Lord Byron was a bisexual, which is often an erased identity.

We see this erasure often. The narrative is created around the idea that someone is a "roommate" or a "close friend", when in reality those relationships were more than just platonic. Even well known homosexuals often get their relationships coded as companions vs lovers. Walt Whitman was well known for his relationship with Peter Doyle. If you were to read older articles about it, however, you'd see Peter referred to as anyone but Walt's lover. It was such a taboo that the erasure of their love was easier than trying to work towards acceptance.

Why is this erasure a problem?

Why do we need to know Emily Dickinson was a lesbian or that Lord Byron was bisexual. Why does it matter? Who cares? I propose this question back: if it doesn't matter why not just be honest about it all? If their sexuality isn't a problem, why can't we know about it? Why can't we know their loves, hear their true words, read the play as it was written? People do care, and rarely is it people who want to leave the narrative alone. So it matters because we've changed the narrative of these people's lives in order to fit an ideology that removes part of who they are, erasing their identity within the LGBTQ+ world.

The problem of queer erasure is not so much the idea that we are changing the narrative, but we are denying a portion of the population the reality that there are people out there like them, doing amazing things. We are changing the identity of someone simply so we don't have to explain something we find uncomfortable to anyone.

We are completely denying them their own story, often until after they are long deceased. It also denies people who may have a bias against LGBTQ+ people the chance to learn that people they like are queer. That queer people are just like everyone else out there, writing poetry about people they love and writing stories that may or may not center anything about their queer identity.

Another aspect of erasure that is not often talked about is the erasure of diverse queer characters due to stereotypes and tropes.

The gay best friend, the random queer who hits on the straight guy, the girl who isn't really a lesbian but she'll kiss a girl for boys attention, the trans person who doesn't get gendered correctly by most people, the bisexual as anything other than someone who is hypersexual. These are all common tropes that keep queer identities as side kicks or afterthoughts.

Think back to some of your favorite books. You can likely think through each of these stereotypes and how they played out in the books you read. A young adult novel where the gay best friend really is in love with the captain of the football team, but of course it's not reciprocated. The theatre kid who is queer and that's his only character development, his sassy gayness. The lesbian who joins the men's soccer team because she's manly and nothing else. We see these stereotypes played out over and over in literature, especially literature aimed at our teens and young adults.

How are these erasures? That is a great question people often ask. Think about the diversity of character you've read about in literature. Where are your gay leading men, your leading lesbians, your gay wizards, your gay people who are just gay but that's not the central character they play?

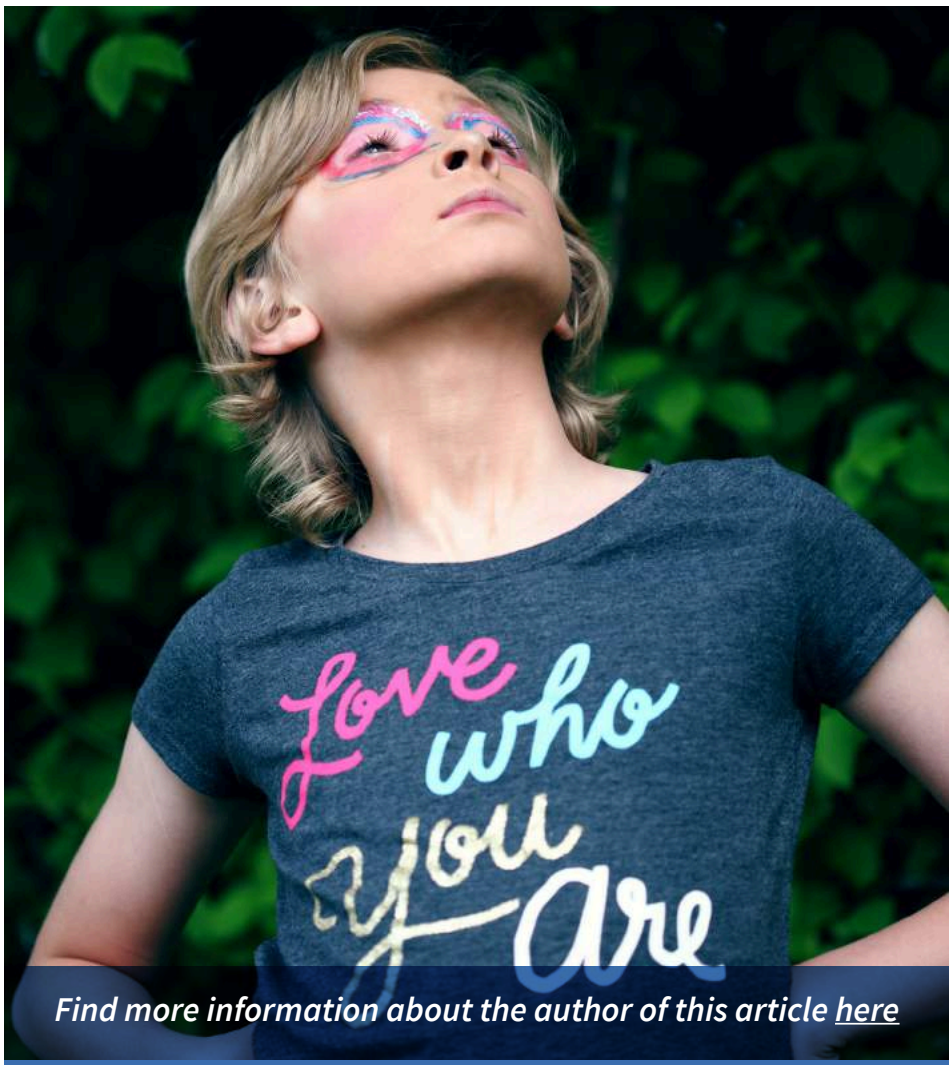
When we reduce a character merely to their homosexuality or being transgender, we remove the fact that we are so much more than just that. We are teachers, we are parents, we are engineers, we are doctors, we are witches, we are restaurant servers, we are so many things. Erasing our identity outside of just being gay erases so much of who we are and what we can do.

It's also important to note the identities we don't see often. Trans characters who just want to exist in the world today. Bi and pan sexuals who exist without having to claim a side. Non binary characters in general. We often seem to foget that the queer world isn't just gay men and lesbian women. It isn't just people who have to decide where they fit into the binary spectrum. When we only write the mainstream part of the queer community we erase the existence of people who don't neatly fit into a box.

What can we do to fix this problem?

The biggest is demand characters who are not a stereotype, whose story line is not a trope of gay unrequited love with the main straight character. Work to find authors who are queer themselves who've written the books we need. Find the books that have a queer character whose entire identity isn't being queer, but who doesn't shy away from his story including that. Hold people accountable who only present literature for review that has these tropes. Queer erasure is something we need everyone to work on to combat.

As we can see, erasure is a huge issue within literature. The erasure of identities that don't neatly fit into a box, the erasure of several different types of identities, the erasure of authors and the communities they belong to, and the erasure of complete queer identites by using stereotypes and tropes all diminish the queer community. Some of these trends are our burdens as teachers to overcome through making sure our learners hear the whole story. It becomes our learner's burden to heed those lessons and make sure our literary future is filled with characters as diverse and deep as the world around them.



Find more information about the author of this article here

Ask Blair

Do you have a homeschooling question? Would you like personalized advice from SEA Homeschoolers founder, Blair Lee? Submit your questions for our Ask Blair column *here*. The SEA Homeschoolers team will select a few questions to be answered by Blair in each issue of The Homeschoolers Magazine, additional questions will be selected for Blair to answer on the SEA Homeschoolers website between issues.

From Mike | Homeschooling 8 years | 7th and 9th grade

We've been homeschooling since my oldest was in 1st grade and my youngest has never been to public school. We're a house of academics, but believe in outside the box, hands-on, project-based academics for most of our learning. My kids have always loved this and loved homeschooling, but this year they have both hit a wall. They just don't want to do anything, even the projects they helped plan. Not doing anything for school is not an option and we are not looking to embrace an unschooling style education at this time. Maybe it's just pandemic burnout or maybe it's just part of homeschooling teens and will pass, but in the meantime, how do I balance their want for nothingness with the need to keep moving forward academically?

Hello Mike,

When Charles Dickens wrote, “It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity, it was the season of light, it was the season of darkness, it was the spring of hope, it was the winter of despair,” he could have been talking about educating teens in both a homeschool and traditional setting.

You are in challenging years, as a parent and educator! It is age and stage appropriate for teens to push the boundaries and challenge authority as they look beyond home and start to think about where they might be headed next. Even without a pandemic that comes with strife, then add in Covid and it can feel scary. The pandemic can make teens feel like the future is uncertain. My 22-year-old son recently told me that a lot of young people feel like they did everything we asked them to, and that they keep doing everything we ask them to, and, from the pandemic to the climate crisis to politics, it all feels uncertain anyway. If your teens are experiencing burnout, they are not alone.

Even with the challenges, homeschooling the teen years can be the best of times. Teens make intellectual leaps and bounds that show them bringing their knowledge together, making connections that are meaningful and profound. It is exciting to witness and be a part of! So how do you get more of this and less of the teen angst?

- **The acquisition of knowledge is a long game.** The statement that you are a house of academics is a value statement that shows your children will benefit from the long-term focus their parents place on learning. Your children grew up in a house that places real value on their being well-learned and able to make logical sense of the world around them. You taught your children how they, as unique individuals, learn. You engaged their minds and bodies and brought it all-together in a holistic way with your focus on outside the box, hands-on, project-based academics.

  I am not recommending you let them do "nothing," however, and neither would most of the homeschooled to college students I know, mine included. Many times, I have heard first- and second-hand this cohort thank their parents for insisting they stick with academics during the teen years. They attribute the successes they have in college and jobs to their parents' willingness to insist they keep learning, even when they tried to bully their parents into letting them do nothing. So, keep doing what you are doing.

- **Make academics nonnegotiable.** When my son would gripe about this, I told him if he still felt that way when he was 30, I would apologize then. (He thanked me when he was 20!) Make the basic subjects essential. It is important to have options. For example, my son wanted to get a degree in political science throughout his teen years. He was sure he didn't need all that math I was forcing him to work on! He is now working toward a degree in construction engineering. Teens do not know what they might want to major in or to do for work, and neither do parents.

- **Start a conversation.** Your children are old enough for you to start an ongoing conversation about what they want in their lives. Let them know that academics are the best way to make that happen. If they are struggling with pandemic burnout, share with them how different the situation would be if everyone understood the science around this public health issue.

  Talk to them about how to reengage. Be open and honest about why academics are important to you. Do not let them push your buttons or convince you they would be better off without academics. Make these conversations real and loving. They might not hear you today, but they will eventually.

- **Set guidelines about the quantity and quality of work.** It might feel pedantic but setting a minimum threshold for the amount and quality of work that needs to be done can help in this situation. Statements like, "You need to be able to write a persuasive essay," or "You need to understand basic algebraic equations," and this is how that is going to happen, might help.

  Start by making a list of the academic tasks and intellectual understanding you think a well-learned person should have at the age of your children. Put a check mark by those where they already have some mastery. Use the items without a checkmark as the baseline for what is essential to be working on now.

- **Would it help to outsource some of their academics?** Outsourcing one or more nonnegotiable classes might help ease the tension. There are enough online platforms and community college classes to satisfy any interest. If you choose this route, it is important to get buy-in from your child. Doing nothing in a college class will result in an F, and that grade will follow your child to college. You will need to keep track to make sure your student is consistently doing their work.

  Assuming they are not interacting regularly outside of your home, think about a live online class in an area of high interest. Make it one that is interactive, so they are getting some time with others their age. This might help with pandemic burnout.

- **Have big, meaty, meaningful academic conversations.** Focus on their interests and yours. Start ongoing conversations about the issues you care about and the issues they care about (even if you are not interested in them). In these conversations, be thoughtful and respectful of your teen's statements as you would be to an adult. Share video clips, news segments, articles, and books accompanied by the statement, "You will find this interesting." Call them out on any logical fallacies too. Ask them what their sources are and where they are getting their information, like you would an adult who made an outrageous claim. This shows your respect for their maturing intellect, at the same time it underscores the value you place on the acquisition of accurate knowledge.

- **Be thoughtful about mental health issues.** Depression among teens is at an all-time high. Get help for them if you think this is part of the issue.

You seem to have real insight into how your children learn. Just stick with it. Do not let them make you doubt yourself!

Much Love,

Blair

From Sara J. | Homeschooling 4 years | 1st grade (7yo) and 8th grade (13yo)

My kids have a large age gap, different interests, and different learning styles. There isn't really anything that I can teach them together. My 13yo can do some things on his own, but really needs my support and attention as we move into the more rigorous academics he is requesting. I am struggling to find balance and meet both their needs. Do you have any advice to keep us all from getting overwhelmed? In case it is relevant, my 8th grader uses AoPS, MCT, Conceptual Science, GAPro History, and weekly Art and French classes on Outschool. My 1st grader uses All About Reading, RSO Astronomy 1, RightStart Math, weekly elementary social studies and Spanish classes on Outschool.

Hello Sara,

Finding balance is often the hardest part of homeschooling. This is a large age gap. Add in rigorous academics coupled with different interests and learning styles and it is easy to understand how you might feel overwhelmed and struggle to find balance. Here is my advice for you.

- **What is going right?** Start by making a list of the things that are going right. For example, are there subject areas that are going smoothly where your learners are showing age and stage appropriate mastery of the concepts they are learning? As you work to find balance, recognize and acknowledge the successes that do not need you to do anything except to keep doing what you are doing. These can be big things, but they can be small things too. The caveat to this is if what is going right is taking an inordinate amount of your time and attention. If that is the case, look for ways you can streamline what you are doing.
- **What do your children have to say?** Have a brainstorming session with your children. Be honest about needing help from them. Get input and advice from them about ways you can all find balance and keep from feeling overwhelmed. If the kids start pointing fingers at each other, don't let that happen. You are all in this together.
- **Get help from the kids!** Look for tasks outside of academics they take over for you. For example, could your children help with meals? What about the laundry? If each of your children took over one of "your" chores, you would consistently have more time each week.
- **Outsource for academics and extra time.** Outsourcing some academics can help, something you are already doing. My advice with this is to be strategic. Use online classes for both academics and as a tool to give you more time to work with your child who is not in the online class. Let the teacher in the online class do some of the time-consuming parts like evaluations.
- **A good working schedule is a must.** You probably already have a schedule. My question for you is, "Is that schedule working?" All three of you are feeling overwhelmed and out of balance, so something is going on with the scheduling. I am going to assume that the courses and materials you are using are working well academically. The question then becomes, how can you fit all those courses into a schedule that works for both kids without you being stressed. Start by keeping a journal for a month. Pay attention to where there are stressors and what consistently goes smoothly. At the end of the month, come back to this and ask yourself if all choices are working well, or if one or more causes stress on a regular basis. If there is stress with one subject area, it does not necessarily mean it is the materials. It might be something else, so pay attention to that in your journal too.

  In addition, the schedule must make sense for all three of you. Often, academic schedules are made around the materials. That is a great starting point. However, it needs to work for each of you individually and as a whole. An important consideration is that the schedule aligns with energy levels. Energy levels fluctuate throughout the day. Make sure the schedule is timed so the most challenging

subjects are learned when energy levels are at their peak. Another way this could be helpful is if you have an early bird and a night owl. In that case you can start one child's academics earlier and your other child's later in the day.

Finally, take a hard look at the schedule. Are you trying to do it all? There is a saying that, "You can do anything, but you cannot do it all." Is there a way to tailor some of the lessons? Or, to skip some parts where your learners show they have mastered the concepts? Can you use a video lesson (while you work with your other child), followed by Q&A to take the place of a more time intensive (for you) assignment?

- **Me and Us time is essential for all three of you!** Make Me Time non-negotiable even if you must schedule it. Homeschooling is a lot of work! Make sure you get the breaks you need to be in the best headspace. What this looks like is individual. Some people need a lot of down time to relax, while others like to be busy much of the time. Some people like being more connected, while others appreciate more time on their own. It doesn't matter what it looks like, as long as you get some time for yourself.

  Along with Me Time, make sure there is downtime for your family. Sometimes when we homeschool it can be all-consuming. If this is you, make sure to take the time to be present with your children outside of academics. Laugh, find joy, and skip school some days just to hang out with each other.

- **Teaching as a tool for learning!** Could your 8th grader help in a mentoring capacity with your 1st grader? I do not recommend this for more than one subject, but if there were one course that this could happen in, you could take this time to work on other tasks.

- **Are there outside stressors you could eliminate?** Take a hard look for these and be ruthless in eliminating them. Finding balance and eliminating stress is a mental health issue. Outside stressors that are affecting your (and your children's) mental health deserve a hard look to see how you can change them.

I hope one or more of these resonates with you. {{HUGS}},

Blair

Submissions

Submit your questions for our *Ask Blair* column *here*.

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Redox Reactions

By John Suchocki

Materials Needed

- ☐ Pennies
- ☐ iron nail
- ☐ sand paper
- ☐ vinegar
- ☐ salt
- ☐ aluminum foil
- ☐ tarnished silver
- ☐ baking soda
- ☐ pencils
- ☐ 9V battery
- ☐ red cabbage
- ☐ safety glasses

What do our bodies have in common with the burning of a campfire or the rusting of old farm equipment? Why does silver tarnish? How can aluminum restore tarnished silver? How are metals produced from minerals? How do batteries work, and what is their source of energy? What are fuel cells, and how do they generate electricity so efficiently? How do photovoltaic cells convert sunlight into electricity? The answers to all these questions and many more involve a class of reactions called oxidation-reduction, sometimes "redox" for short. These reactions involve the transfer of electrons, which occurs when an atom that tends to lose electrons is placed in contact with an atom that tends to gain electrons.

The classic example is with sodium and chlorine atoms. A sodium atom loves to lose electrons, while the chlorine atom loves to gain them. Put these two atoms together and BAMM! A chemical reaction occurs. The sodium loses an electron to become the sodium ion, Na^+. The chlorine atom gains that electron to become the chloride ion, Cl^-. Because they have opposite charges, these ions then come together to form sodium chloride, which you'll know as common table salt.

Figure A

(a) Chlorine gas, Cl_2, is introduced to a small lump of sodium, Na, resting on sand within a reaction flask.
(b) The two chemicals react explosively.
(c) The end product is chemically stable sodium chloride, NaCl, which can be seen coating the inner surface of the flask. Through this exothermic reaction, sodium metal is *oxidized* by the chlorine gas and the chlorine gas is *reduced* by the sodium metal.

There are many details to understand when it comes to oxidation-reduction reactions. But a good place to start is with performing a number of these reactions (the safe sort) right within your own home using household materials. Of course, safety first. Common sense and eye protection are always advised. Now we have your attention, right?

The Penny Copper Nail

Copper metal slowly reacts with the oxygen in air to form reddish copper (I) oxide, Cu_2O, which is a compound that coats the surface of older pennies, making them look tarnished. When such a penny is placed in a solution of salt in vinegar, the copper (I) oxide acts as a base and reacts with the vinegar to form copper salts, which dissolve in the vinegar. This effectively cleans the penny. The copper salts can then be transformed back into copper metal when exposed to an iron nail.

Procedure

1. Stir about half a teaspoon of salt into about half a cup of white distilled vinegar. Use a nonmetal container such as a ceramic or plastic bowl.
2. Dip a tarnished penny halfway into the solution and notice the rapid cleaning effect.
3. Add at least a dozen tarnished pennies to the solution. As they are cleaned, the concentration of copper ions in solution will increase.
4. Sandpaper an iron nail to give it a clean surface and then rest the nail in the vinegar solution for about 10 minutes. Watch for the formation of copper metal on the nail.

Cleaning Silver

Silver tarnishes because it reacts with the small amounts of smelly hydrogen sulfide, H_2S, we put into the air upon digesting our food. In this reaction, the silver loses electrons to the sulfur. You can reverse this reaction by allowing the silver to get its electrons back from aluminum.

Flatten a piece of aluminum foil on the bottom of a cooking pot. Fill the pot halfway with water and bring the water to a boil. Once the water is boiling, remove

the pot from its heat source. Carefully add 2 tablespoons of baking soda to the hot water. Slowly immerse a tarnished piece of silver into the water and allow the silver to touch the aluminum foil. You should see an immediate effect once the silver and aluminum make contact. (Add more baking soda if you don't.) If your silver piece is very tarnished, you may notice the unpleasant odor of hydrogen sulfide as it is released back into the air.

Splitting Water

A redox reaction can be run in the reverse with the addition of electricity. For this activity you'll be using the electrical energy of a battery to split water molecules into hydrogen, H_2, and oxygen, O_2, gases.

Sharpen both ends of two small pencils. Hold a tip of each pencil to the two terminals of a 9-V battery. Submerge the other two tips into some salt water. After a few moments, bubbles will start to rise from the submerged tips. Which tip is releasing hydrogen? Which is releasing oxygen? How might you know? (Hint: Does a water molecule have more hydrogen or oxygen atoms?) Add some concentrated red cabbage broth to the salt water and then submerge the top of the battery without using the pencils. Why does the water around the positive terminal turn green? Why does this activity quickly ruin the battery (which therefore should not be used again)?

A Hands-on Science Series from Conceptual Academy

Conceptual Academy is a video-centric course system used by colleges and high schools for introductory science, now available for homeschools, grades 7 – 12.

Find more information about the author of this article here

A Dozen Questions for Dozen Day

Did you miss our Dozen Day activity on December 12th? Here are a dozen fun questions that will inspire new educational rabbit holes any day of the year!

1. What is the largest one-syllable number?
2. How many people have walked on the Moon?
3. How many is a gross?
4. What does Duodecad mean?
5. Lysithea is the Moon of what planet? Counting away from that planet, what number moon is it?
6. It is thought that humans started to count on a base _____ because of the number of cycles of the moon each year. What goes in the blank?
7. Thirteen of something is also known by this name.
8. How many are in a “great hundred?”
9. If you add the individual numbers of either of these numbers: 12 or 1,200,000,000,000 based on the summed result, you know the number is divisible by what prime number that is larger than 1 and less than 10.
10. How many movies can you name with the word dozen in it? (No peeking on your phone.)
11. “When the Babylonians invented the constellations 3,000 years ago, they chose to leave out a 13^{th} sign.” What is the name of the zodiac sign NASA is referring to? Why did the Babylonians omit the 13^{th} zodiac sign?
12. How many zeros are in duodecillion?

Click here to check your answers

Contributor Bios

John Cook is a research fellow at the Climate Change Communication Research Hub at Monash University. He is also affiliated with the Center for Climate Change Communication as adjunct faculty. In 2007, he founded *Skeptical Science*, a website which won the 2011 Australian Museum Eureka Prize for the Advancement of Climate Change Knowledge and 2016 Friend of the Planet Award from the National Center for Science Education. John co-authored the college textbooks *Climate Change: Examining the Facts* with Weber State University professor Daniel Bedford. He was also a coauthor of the textbook *Climate Change Science: A Modern Synthesis* and the book *Climate Change Denial: Heads in the Sand*. In 2013, he published a paper analysing the scientific consensus on climate change that has been highlighted by President Obama and UK Prime Minister David Cameron. In 2015, he developed a Massive Open Online Course at the University of Queensland on climate science denial, that has received over 25,000 enrollments.

Blair Lee, MS is the author of *The Science of Climate Change: A Hands-On Course*, the primary author for the critically acclaimed *REAL Science Odyssey Series*, and co-author of *Project-Based Learning: Creating a Modern Education of Curiosity, Innovation, and Impact*. Through her speaking and writing, Blair's goal is to empower educators to dare to be innovative and create something unique and academically-rich when handcrafting their students' education. Blair is the founder of Secular, Eclectic, Academic Homeschoolers and SEA Books & More. In 2020, Michelle Parrinello-Cason and Blair started SEA Online Classes. The classes being developed are a different kind of online class that honor learning in a way that scaffolds the specific needs and goals of each student.

Michelle Parrinello-Cason has a Ph.D. in English with an emphasis in rhetoric and composition.Her research interests include pop culture, the history of writing instruction in American colleges and universities, developmental writing, online education, and alt/dis. Michelle lives in St. Louis, MO where she homeschools her two children. She helped found and now serves as a governance committee member for a secular homeschool cooperative that offers educational experiences to learners across the city. She is the founder of *Dayla Learning*, a source for "homeschooling the humanities with humanity" that provides online classes, teaching materials, and resources. She is also the co-founder of SEA Online Classes, a platform that focuses on engaging, meaningful, hands-on online learning experiences.

Samantha Matalone Cook is an educator, historian, writer, maker, and speaker. She has almost three decades of experience in education and program development, 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. 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 fledged to college. Currently, her favorite games are *The Quiet Year, Talisman, Code Names, Azul, Minecraft, Assassin's Creed: Valhalla, The Legend of Zelda: Breath of the Wild, Moss, and Beat Saber*. To see her past and current projects, including her blog, her book on Project-Based Learning, her Harry Potter-themed book studies, Pandia Press History Odyssey curriculum, and her course offerings through SEA Online Classes, please visit *www.samanthamatalonecook.com*

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 Science-Craft: New Horizons in Sociology, Philosophy and Science Studies* (2009).

Sydney Miller Milbert has a background in the fine arts and graduated with degrees in fashion design and marketing. Changing paths after graduation, she worked for an international education technology company in content production and community building, where she developed an interest in project-based and collaborative learning for school-aged learners.

Sydney has taught classes and led clubs for learners aged 4 to 12, where she focuses on connecting learners not only with the subject of study, but with each other. She teaches with NICE Circle, the 501c3 non-profit homeschool support organization that she founded in her area, and SEA Online Classes. Sydney lives in the Washington, DC metro area and has been homeschooling her children for over 5 years. She also works with the SEA Homeschoolers Online Conference Series team and is currently illustrating an upcoming book with author Blair Lee.

Contributor Bios

Joshua Jernigan (he/him/his) is a transgender rights activist and philanthropist living in the greater Charlotte metropolitan area where he and his husband are raising their daughter together. He started the *Gender Education Network*, an organization helping transgender and gender diverse kids 12 and younger, and is passionate about ensuring every child has a safe and loving home to nurture their growing identities. He also is passionate about accurate LGBTQ+ History and teaches courses on Queer History through *SEA Online Classes*. Most recently he published his first children's books, *Meet My: Best Friend*, the first in a series of books about getting to know our trans loved ones.

John Suchocki is the founder and CEO of Conceptual Academy, a video centered course system used by colleges and high schools for introductory science, now available for homeschools, grades 7 – 12. Thank you for visiting their dedicated homeschool support site at LearnScience.Academy

A Dozen Questions for Dozen Day

Answer Key

1. 12
2. 12
3. 12 dozen
4. A group of 12 things
5. Jupiter, 12th
6. 12
7. baker's dozen
8. 120
9. 3
10. ß Cheaper by the Dozen. (1&2)
    - ß The Dirty Dozen.
    - ß Dozens of Sand.
    - ß The Devil's Dozen.
    - ß The Dozens.
    - ß A Dozen Summers.
    - ß A Dozen Ways to Die.
11. Ophiuchus – To keep the zodiac nicely aligned with the yearly calendar
12. 30

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Whether you are new to homeschooling or you have been homeschooling for a while, SEA homeschoolers can help you handcraft your student's journey through learning. At SEA Homeschoolers we are passionate about innovative learning that is alternative and academically-rich. We have 100,000 families in our large, active, and diverse secular homeschool community. SEA Homeschoolers has free online conferences and a quarterly magazine. We have a series Masterclasses for Homeschooling Parents & Educators. SEA Homeschoolers has multiple Facebook groups that function as a forum where you can get your questions asked to help with your homeschool journey.

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