

# SEA

SECULAR | ECLECTIC | ACADEMIC

**HOMESCHOOLERS**

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**Teaching Consent  
Through Minecraft**

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**Gameschooling:  
The “All Games  
are Educational”  
Perspective**

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**Entropy:  
The Spreading  
of Energy**

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**5 Steps to Creating  
Your Own Board  
Game**

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**How Two  
Homeschooled  
Kids Became Game  
Developers**

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**Oculus Quest  
Game Review**

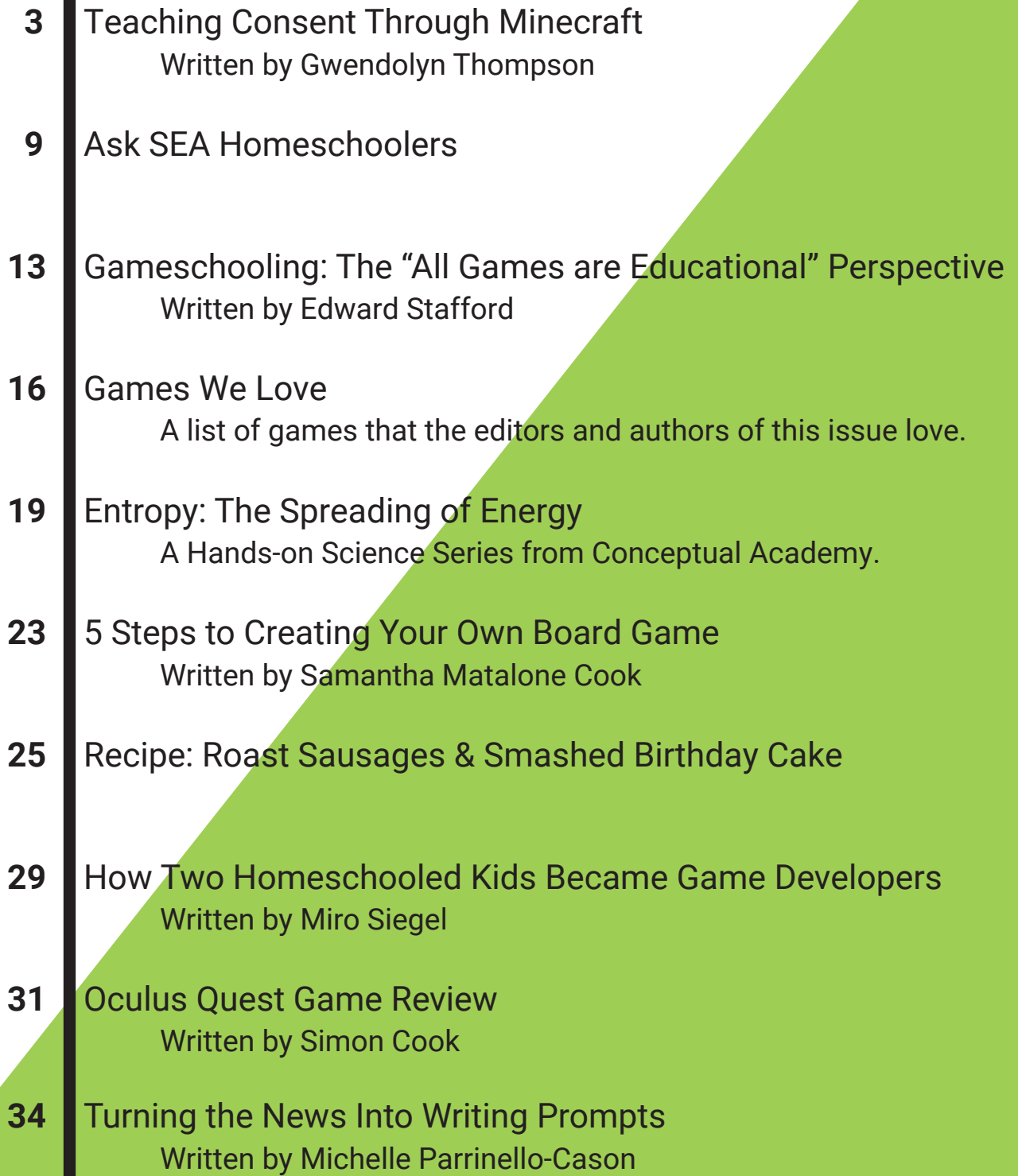
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**February 2020**





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# Letter from the Editors

February 2020

Dear SEA Community,

We knew we wanted to do a gameschooling issue for SEA magazine months ago. Games are more than just fun. Every game teaches one or more valuable lessons that build confidence, ability, and life-long learning. Games are inter-disciplinary, offering the benefits of many subjects and skills while underlining the truth that all subjects relate to and rely on each other. In fact, games support the idea of interleaving, which is the teaching and learning of multiple subjects at the same time for optimal comprehension and retention. Games are intersectional; they both acknowledge and defy social, cultural, and political frameworks and support players in determining their own rules and identity. Games are social; they bring people together and connect us to our communities. Games are reflective; they reveal the integrity, perseverance, creativity, resilience, and often humor, not only in ourselves but in those we play with. Games make us think deeply about strategy, logic, and goals.

It was a lucky coincidence that this issue was the next one on our schedule, and that SEA Magazine editor Samantha Matalone Cook was a featured speaker at GameschoolCon in Irvine, CA a few weekends ago. She was joined one of those days by editor Blair Lee for a book signing event. The experience of that conference only served to highlight the importance and value of games, and frankly, we ended up adding even more to this issue after being so inspired. We met game developers and other educators who are doing extraordinary work to bring diversity, academic integrity, creativity, innovation, and enjoyment to the gaming community. We saw the motivation and joy of kids and families playing all kinds of games: card games, board games, video games, role playing games. The holistic education received from this environment was more than evident.

We've put together what we think is an exceptional issue of thought around the theme of gameschooling. Each article highlights a different angle on the importance of games and how to integrate them into your homeschooling life. We hope this issue inspires you to bring a little more play into your weekly rhythm, or if you already play a lot of games, perhaps look more deeply at how games can serve you and your family.

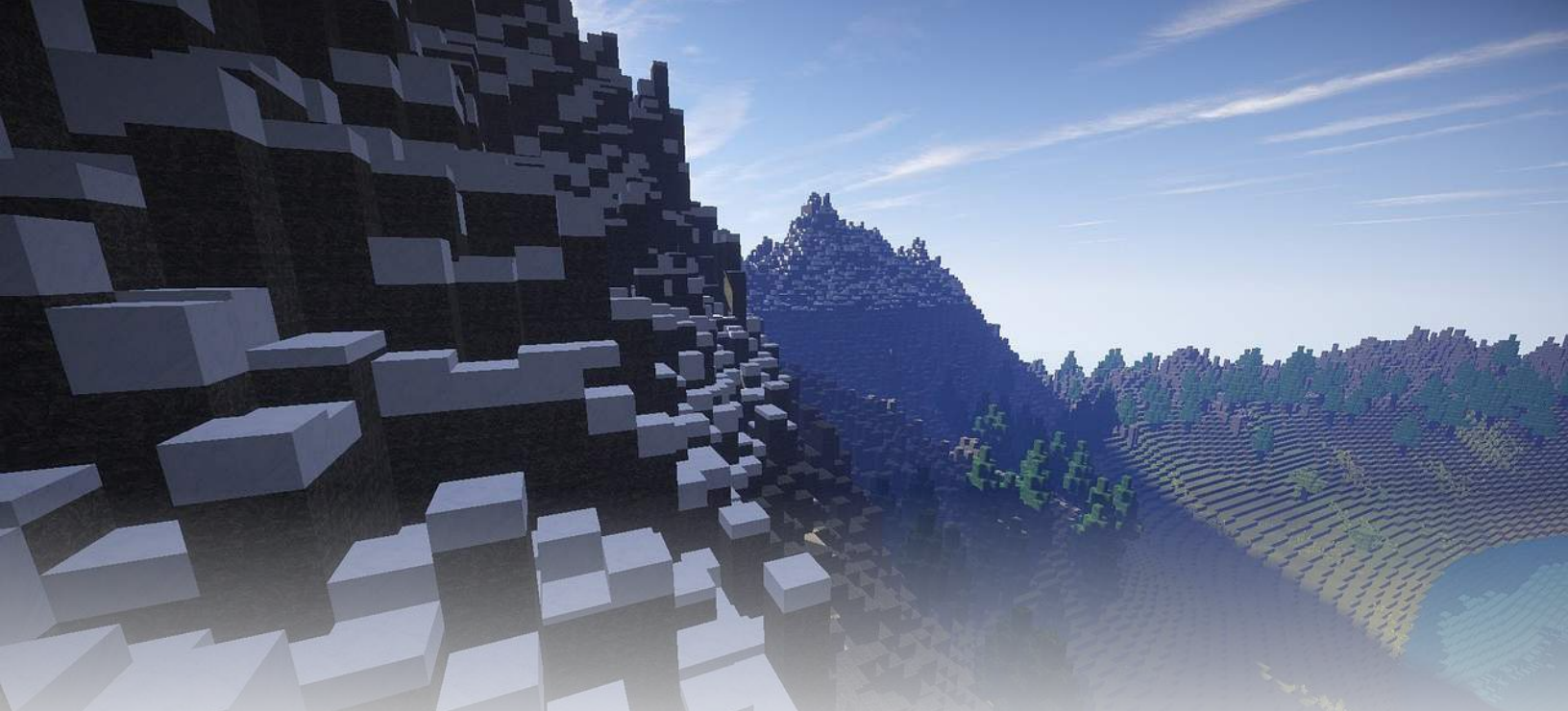
As always, if you have ideas or questions for the SEA magazine, we welcome you to contact us.

Your editors,

Samantha Matalone Cook and Blair Lee



[www.seclarelecticacademic.com](http://www.seclarelecticacademic.com)



# Teaching Consent Through Minecraft

Written by Gwendolyn Thompson

The classroom was filled with happy muted chatter, the kind you rarely hear in a traditional classroom setting. The occasional peel of laughter would erupt interspersed with moments of intense collaboration... then all of a sudden a scream broke the peace:

"Stop hitting me... he keeps hitting me!" then it escalated to "Hey! Why are you trying to kill me... you really are going to kill me!!!"

Moments later from the other side of the room, "They filled my house with Lava!" and the final straw: "STOP SPAMMING MY WORLD WITH CHICKENS!"

Once again I whispered to myself, "Minecraft giveth and Minecraft taketh away." I love minecraft as a medium for teaching everything from coding to history but I quickly learned that there are inherent problems with a tool that gives students complete freedom in a virtual world with endless possibilities and no built in rules. Whenever I have a "problem" in the classroom, I usually try to dig to the root of the issue. Here I was with a room full of preteens during the first summer of the

"me too" movement and it hit me, the root of this particular problem is a lack of consent!

So I decided to do a little experiment. I introduced the concept of consent to my students and to my pleasant surprise, it changed everything.

## Who am I, what do I do and why do I care about teaching consent through Minecraft?

I am a technology educator working with the Santa Fe College Community Education department in a program called College for Kids. We are responsible for several large camps as well as a year round homeschool and after-school technology and robotics program.

Our classes have anywhere from 10-20 students in them (age 8-14) with at least 2 counselors in training (ages 15-18) and may even have at least one college age program aid at any given time. They generally run from two to four hours each week and can last between 2-8 weeks at a time. We have served thousands of students over thousands of hours in the past 6 years.

My Minecraft classes are among the most highly sought after in all of our programs...often selling out within minutes of registration going online.

My Minecraft classes are hands on, thematic, and project based with titles like Castle Defense, Coding and Modding, Expedition to Mars, and Fractured Fairy Tales to name a few. We have both in game and real world activities that teach a wide range of content that is both fun and maintains a high educational standard.

Students spend much of their time immersed in expansive and detailed Minecraft worlds creating, exploring and interacting with NPCs and other students. Often we use competition or collaboration to motivate students to interact with the educational content.

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***“The virtual world creates the ability to make personal boundaries as well as express personal autonomy unlike anything that a child is likely to experience in the real world.”***

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The diversity of ages, skill levels, and backgrounds in our classes as well as the wide range of content I cover often makes my classroom dynamics more complicated than a traditional classroom. Before implementing consent education in my Minecraft classes this extended ingame interaction and diverse grouping of students and content would often lead to conflict. I would like to say that integrating consent education into our daily routine has made this conflict a thing of the past... it hasn't but what it has done is give my students and I language to

discuss this conflict and resolve it when it comes up, in a way that has become natural and consistent.

I'm not a child psychologist, so I'm not going to go into how important it is to teach consent to children. You can find out more on this topic in the articles linked at the end of this article. Regardless of your views on when or where you believe sex education should happen, I hope that you understand that consent is a vital part of that conversation. However, I also want to emphasize that consent isn't only about sex and can be taught to young children without even bringing sex up.

With my experience in technology and education, I do feel that I can confidently address how minecraft is a great tool for teaching consent and how consent education can improve how you teach using minecraft as a tool. Once I started teaching about consent through minecraft, my entire classroom dynamic changed and the icing on the cake was seeing children talk about and implement consent outside of minecraft.





## **The reason I believe Minecraft is so popular is the very reason why we should be teaching consent around Minecraft.**

For those new to Minecraft it is a virtual lego type game. It is often referred to in the video game world as a virtual sandbox, where you can create worlds with things like buildings, homes, farms and really anything you could think of... just like legos but virtual. You can join servers and play with others all around the world or play on LAN (Local Area Network) as a group IRL. Players are both users and content creators in game and can control both what is built within the world as well as the settings for the world including things like how hard gameplay is and whether you are faced with mobs (things that can kill you) or not, and if your world is PvP (player versus player: where you can fight other players in game).

The virtual world creates the ability to make

personal boundaries as well as express personal autonomy unlike anything that a child is likely to experience in the real world.

Do the children you know get to control when or what they eat, when or where they sleep, when or where they spend their time? If so how often do they have this kind of control? If not... what kind of things do the children you know get to control? It is no wonder Minecraft is so popular... In the virtual world children have ultimate control over everything. For those children who have more choices in life, it is a natural extension of their real world (Yay!) For those children who have fewer choices in their life they get to experience what life might be like if they did have more control of their world (Yay!).

In the virtual world it is very easy to overstep consent boundaries both intentionally and by accident, so it is very important to make those boundaries explicit at the beginning of the class and throughout game play. Any student



who has played the game with others has had boundaries crossed so they know how it feels.

Students learn very quickly that these rules protect themselves every bit as much as they protect others. In this digital world, traditional privilege and power structures disappear and everyone can equally learn the benefits of mutual consent like never before.

The virtual world allows students to interact, make mistakes, correct their mistakes, in a safe digital environment where damage can easily be repaired, property returned, and virtual lives can be restored over and over again. Students internalize these lessons faster and more naturally as they play and experience consent first hand. Lectures, roleplaying and lessons don't help students truly relate the topic to their lives the same way as experiencing it first hand does.

## How do I teach consent through minecraft?

I start our discussions of consent before I even allow students onto their first Minecraft world. It is part of our classroom framework much like how to log onto the computers or what to do if you need to get a drink of water. I go over how we use consent often and whenever there is a conflict. I discuss "enthusiastic consent" and explain situations in which someone might not verbally consent because they might be too afraid or uncomfortable to complain. This is an opportunity to reinforce the vocabulary of enthusiastic consent so that it is no longer new, awkward, or taboo. I make it clear to students that consent isn't static and requires continual, consistent collaboration and communication.



## Some of the specific Minecraft related "rules" are:

- 1) No is always accepted and not up for discussion.
- 2) When someone creates a world in Minecraft no one is allowed to join into their world without them stating clearly and enthusiastically "Yes! you may come into my minecraft world." I make it clear that a shrug or an "I guess so" is not enough to get consent.
- 3) The student who creates the world is allowed to set the conditions for play in that world. They are allowed to kick anyone out of their world for breaking the conditions of the world. They can stop hosting their world at any time without prior warning. Once they allow visitors in, those visitors may not touch anything, enter anything (like buildings or houses) break anything, or grief anything (that means filling a house with monsters, lava or the like) without enthusiastic consent. Consent must be asked for each and every time a visitor wants to interact in anyway with something that they didn't create.
- 4) All worlds will be treated as non-PvP unless stated otherwise. Meaning you may not hit or grief a person in any way without their enthusiastic consent.
- 5) If you join a PvP world you are consenting when you join that you may have someone initiate PvP with you. (you still may leave the game at any time should this happen). If you don't want to PvP don't join a PvP world. The owner of the world must make it clear that the world they are creating is PvP and anyone who asks for consent to join must be told (before they join) that it is a PvP world and what the rules are. If the owner of the world wishes to change the status of the world to or from PvP, all players must be notified in advance and given the option to leave before the owner changes the status.

## How did teaching consent through minecraft change everything?

The classroom was filled with happy muted chatter... but today I started the class out by introducing the words "enthusiastic consent." I hear my teenaged aids giggle, but they try to hide it as I raise an eyebrow at them. I hear one of them say something unintelligible to the other that sounded like it might have been questionable. I ask if any of the students have ever been grieved before and all of the ones who had played with friends or online had. I asked them how it felt... no one liked it.

I outline the rules of consent and I hear some groans but everyone eventually joins in as I ask, "If you want to join someone's world you must have their... enthusiastic consent."

I ask, "If you want to enter someone's house, you must have..." they chime "enthusiastic consent." It is getting louder and quicker to the tongue.

"If you want to PvP you must have the other person's..." you get the picture. As the weeks go by and the students are getting more comfortable with me and their fellow students they test the boundaries or fall into old habits (trolling habits die hard). Someone notices that a player didn't ask for consent to join their world...

I ask them "What can you do?" They tell the person their rules and remind them that they will kick them out of the world if they don't obey the world rules. The interloper quickly gives a verbal and enthusiastic vow to keep the rules. Crisis averted.

Later I hear: "Stop that! Hey! Stop that!"

I reply "It sounds like someone is not using consent." I hear an "Oh yah! Sorry!" and a reply of "don't do it again or I will shut down the world!"

These kiddos have got it! A week or two goes by and I miss the conflict but I hear that same giggling student aid say firmly to a student,

### Bio:

Gwen is a homeschool mom of four kiddos (ages 10-20) with a background in early childhood education and graphic/web design. She founded Wizzbangz LLC a mobile makerspace dedicated to teaching technology, coding and making through doing and was a Maker of Merit 3 years running at the Orlando Maker Faire. She has been teaching hands on technology and coding classes for the last 8 years with homeschool groups, museums, public schools and libraries. Gwen currently teaches technology courses for Santa Fe College's Community Education department. She has volunteered in her community as a guild leader with Curiosity Hacked guild 19; a Google Maker Camp Affiliate; a Littlebits chapter leader, and a Minecraft global mentor for several years. Gwen believes that we all learn best by doing and her goal is to demystify the black boxes of technology. She teaches because she loves to see students become independent thinkers, designers and makers who have confidence in themselves and have a greater understanding of the world around them.

### Links:

<https://www.gse.harvard.edu/news/uk/18/12/consent-every-age>

<http://www.consentiseverything.com/#Home>

<https://teachingsexualhealth.ca/teachers/sexual>

"ENTHUSIASTIC CONSENT!" and I don't even have to step in at all. The daily conflicts happen but the students have learned to set boundaries, communicate consent, and hold each other to account. My double edged sword is now a tool for deeper learning... and might just change how a bunch of kiddos interact with others in the real world.



## SEA February Sales!

Sales range from online classes, books, lesson planning or unit studies, and more!

**Catch any daily sales you missed on the last day of February.**

**All sales will reactivate the 29th!**





# Ask SEA Homeschoolers

Every month we receive homeschooling questions that are of interest to our larger community. If you have a topic you'd like us to weigh in on, please send a message to [contact@seculareclecticacademic.com](mailto:contact@seculareclecticacademic.com)

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## **I see a lot of people talking about using games for learning. Can gameschooling really be considered a real education?**

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Absolutely, yes. Remember two important things: all games are educational and there is a game for almost any knowledge or skill you want to teach or your child wants to learn. Games do not just teach topical things. They teach skills hard to get at in other ways, like strategy, cooperation, and attention to detail, to name a few. Gameschooling exclusively can work for some families, and for others it will be one part in a larger educational plan. But one thing is for sure, integrating games into your homeschooling life is fun, interactive, and effective. There are many articles in this issue that elaborate on the educational benefits of gameschooling, so we encourage you to read those.



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## My kids are obsessed with screen time and playing video games. Is there a balance?

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This might be one of the most asked questions we see. The reality is that we are all trying to learn how to parent in the digital age, something the generations before us never had to deal with (they had their own challenges!). The answer to this question is: of course there is a balance! There is not, however, a simple answer to what constitutes balance. Some children are more sensitive to screen time, or lack the maturity to regulate themselves and may need more structure. Other families have no restrictions on screen time. Many families build more media freedom over time and mentor their kids towards self-regulation and autonomy. We are here to tell you that the best amount of screen time for your family takes into account all of these factors: schedule, maturity, special needs, parenting philosophy, and relationship. Your decisions around what screen time looks like for your family may change and evolve over time along with the growth of your kids, and those decisions should be entirely based on your own experience and needs.

There are four important ideas, however, that we believe should always weigh into your screen time discussions. The first is that rules around screen time should never be arbitrary. That is, every rule should have a concrete reason with an explanation that your child can understand. Second, don't 'ick' their 'wow!' Treat your kid's interest in YouTube or video games with the same respect you'd like others to have for your own interests. Their passions are valid and showing your support, and perhaps even a willingness to learn about what they are so passionate about, will only serve to enhance your relationship. Often, in this situation, you are judging something that you have not fully immersed yourself in. If you feel you cannot understand how anyone could be so intrigued by something, give it a try. Find a game to play together. Our children and us have played, laughed, and even bickered during 2-player games about what to do next. Thirdly, make sure any rules that you have are consistent and compassionate. In particular, show an understanding about how their games or shows work. Make sure kids know ahead of time when they need to get off so that they don't accidentally start a new level and then have to stop in the middle. Often this will cause them to forfeit a match. This is a kindness that will be appreciated. Finally, monitor the behavior that you, yourself, are modeling around screen. This is very important for consistency and compassion.

Involving your children in figuring out how screen time will fit into your family life is probably one of the best things you can do. Then everyone's needs can be assessed and discussed, resulting in a much more open and reasonable solution.



# WHY DO HOMESCHOOL PARENTS LOVE OUR BOXES?

"I'm using it with all 4 of my kids at once preschool - 5th grade. Everyone is able to work on the same project at their own ability level."



"Everything needed is included in the box along with clear instructions."

"I love the ideas for extending the project. We often get several projects out of one box."



COMING SOON: THE **NEW AND IMPROVED**

# SEA HOMESCHOOLERS MEMBERSHIP

## **BIGGER**

Webinars, SEA Homeschoolers Magazine, Unit Studies, Discounts, Online Workshops, Activities, Product Reviews, Educational Materials, Classes for Educators & Students, Meet-Ups, Homeschool Support, Member Exclusive Add-Ons from Partner Companies, Conventions, Student Clubs, Members Only Facebook Group, Give-Aways, Member Bonuses...

## **BETTER**

A new user-friendly members' area is being built for seahomeschoolers.com.

## **FASTER**

We are growing our membership support team to better meet your needs.

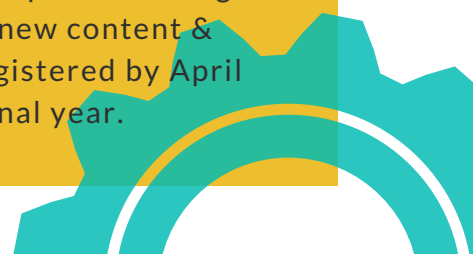
## **MORE**

More Content, More Support, More Guest Speakers, More Ways to Connect with the SEA Community, More Product Discounts, More Member Benefits & Bonuses

## **20% OFF MEMBERSHIPS**

February 25th & 29th during our Leap into Learning sale!

We will start rolling out the new member benefits in March & April with a big Membership relaunch planned for May 2020. Adding lots of new content & features will mean a price increase, but all paying members registered by April 30, 2020 will lock-in the current pricing for an additional year.



# Gameschooling: The “All Games are Educational” Perspective

Written by Edward Stafford

In his 2016 TED Talk, psychologist Peter Gray said, “From a biological evolutionary perspective, play is nature’s means of ensuring that young mammals, including young human beings, acquire the skills that they need to acquire to develop successfully into adulthood.” As anyone who has ever watched kittens play can attest, after they’ve gotten over the cuteness factor, that the kittens are not merely having fun. They’re practicing all the things that a predator needs to know to be successful, like timing the perfect pounce.

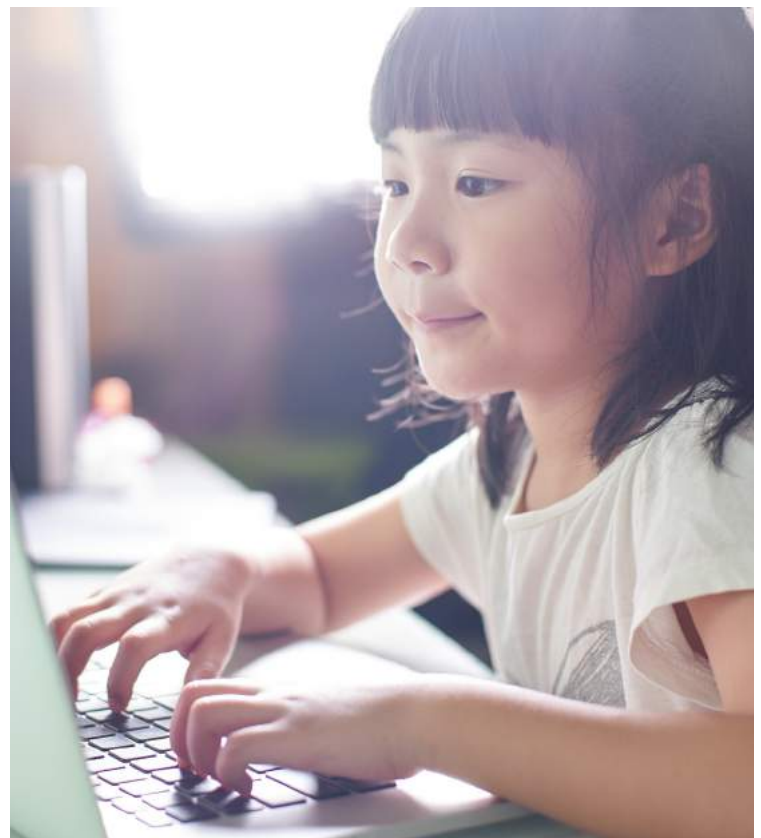
On the surface, humans learning through play seems an uncontroversial opinion. But with the dawn of the Industrial Revolution, humans began to equate playing with wasting time. After all, how could one be doing anything productive if they are having fun? Like many ideas from bygone eras, the notion that learning and fun are mutually exclusive has been proven false thanks in part to research done by Gray and others. In fact, an entire cottage industry has sprung up in support playing games to facilitate learning.

It’s called “gameschooling,” and much like the other words with the-schooling suffix (ie. homeschooling, worldschooling, roadschooling, etc.) it is exactly what its name implies. Gameschoolers engage in learning by playing games. And though it’s a term most often employed in the homeschooling and unschooling worlds, anyone can, in fact, gameschool.

My journey into gameschooling began

seven years ago. I had just met the woman who would become my wife. She had two children from a previous marriage and I had one. Her oldest child had just started playing Magic: The Gathering. As a child of the 70s, I loved board games and I had heard of Magic, so I thought learning how to play would be a good way to bond with this precocious ten-year-old who was more than just a little obsessed with the game. I watched a YouTube tutorial, bought a deck, and sure enough, she really appreciated the fact that I was willing to learn something that brought her so much joy.

But then I noticed something. Magic is a rich, incredibly complex game. All of the cards do something different. It’s almost like learning another language. It dawned on me as we were playing that this kid across from me was doing math. She was interested in reading the cards to





understand their effects and deciphering each card's symbology, which is indeed a language all its own. She was planning several moves ahead. There was a lot more going on here than just having a little fun. That was the lightbulb moment: she's learning.

As our family's interest in games grew, thanks in large part to the YouTube series TableTop, it quickly became apparent that beyond just spending quality time with the kids, playing board games together was having unintended consequences like bolstering focus and introducing the idea of sportsmanship to our very un-sporty family. These things were in addition to the math, reading, critical thinking, and socializing that was happening.

This formed the foundation that would lead my wife and I to start a new business, Gamerunner. The Gamerunner philosophy is simple: All Games Are Educational. Yes, there are lots of games out there that bill themselves as "educational games." Some of them are even good. But I have discovered that the educational part of playing games works best when it goes unspoken.

When kids are just playing a game that happens to incorporate math or a programming

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***"When kids are just playing a game that happens to incorporate math or a programming mechanic, I might point it out in passing or maybe as a joke."***

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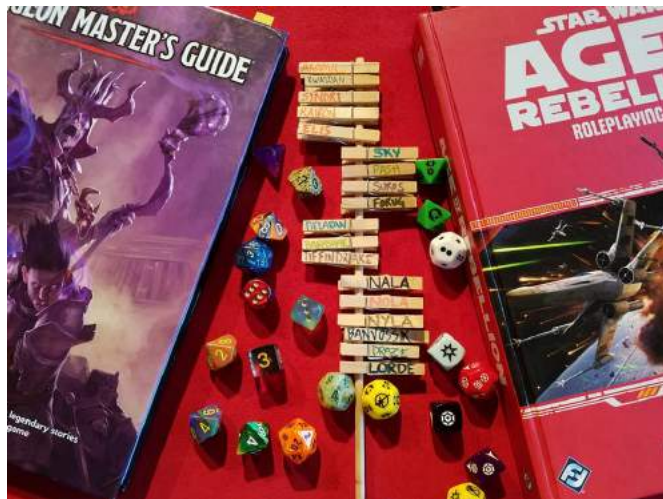
mechanic, I might point it out in passing or maybe as a joke. In fact, I often refer to D&D as "Dungeons and Dragons and Math." But the real magic occurs when everyone at the table is having fun, engaged in the game, playing together. I've seen students gleefully do math in their heads, enthusiastically make complex plans as a group, and silently plot how to pull off a last minute, come-from-behind win, all within the confines of playing a game. And like the mother cat, I don't interrupt their play to tell them how one day their nicely-timed pounce will be of use when hunting their prey. I trust them to figure that part out for themselves and, in the meantime, just enjoy playing.



# GAMERUNNER

## Celebrating Five Years of Gameschooling

Gamerunner started with the simple idea that play is a great way to learn skills ranging from literacy and critical thinking to sportsmanship, communication, and negotiation. Our current class offerings include board game classes, role playing games, and maker classes. We are proud to offer interesting and unique programs in a family-friendly environment. Join us for one of our upcoming sessions!



### About Our Classes

Gamerunner offers board game classes that introduce students to a new game each week, as well as old-school classic role playing games like Dungeons & Dragons, and fabulous new RPGs like Numenera, Kids on Bikes, Mouse Guard, and Fate. Our newest classes teach kids how to be a game master and craft cool accessories for their own RPGs. Gamerunner is your premier source for gameschooling classes in SoCal.

All classes take place in our Long Beach game room and workshop near El Dorado Park. Gamerunner is an approved vendor with Inspire, iLEAD, Sage Oak, Summit, SCALE Leadership Academy, and Sky Mountain Charter Schools. Gamerunner offers summer camps, winter and spring intercession classes, and we are available for birthday parties and pop-up maker classes, too! Visit our website for our current schedule and rates.



[www.gamerunner.com](http://www.gamerunner.com)

[gamerunnergames@gmail.com](mailto:gamerunnergames@gmail.com) | 310-625-5088

# Games We Love

A list of games that the editors and authors of this issue love:

## Board Games:

[Lucy Hammett's Bingo games](#) (various themes) (3+)

[Chess](#)

[Enchanted Forest](#)

[Dragonwood](#)

[Azul](#)

[Snake Oil](#)

[Splendor](#)

[Talisman](#)

[Code Names](#)

[Wise and Otherwise](#)

[Sagrada](#)

[Tsuru](#) (Board Game and App!)

[Betrayal at House on the Hill](#)

[Fortnite Monopoly](#)

[Mysterium](#)

[Mixtape Massacre](#)

[Lord of the Chords](#)

[Lords of Waterdeep](#)

[Patchwork](#)

[Railroad Ink](#)

[Scythe](#)

[Catch the Moon](#)

[Viticulture](#)

[Battlestar Galactica](#)

[Wingspan](#)

[Adrenaline](#)

[Star Wars: Imperial Assault](#)

[Colt Express](#)

[Tokaido](#)

[Quacks of Quedlinburg](#)

[Oaxaca](#)

[Ecos: The First Continent](#)

[Ravine](#)

[Isle of Cats](#)

[Barenpark](#)

[Inis](#)

[On Tour](#)

[Energy Empire](#)

[Terraforming Mars](#)

[Pandemic](#)

[Mau/Mao](#)

[Black Wall Street](#)





## Awesome roleplaying games that are NOT D&D:

[Numenera](#)

[Blades in the Dark](#)

[Kids on Bikes](#)

[Icarus](#)

[Monster of the Week](#)

[A Quiet Year](#)

[Mythos](#)

[Dungeon Crawl Classics](#)

[Paranoia](#)

[Call of Cthulh](#)

## Video Games:

[Smash Brothers](#)

[Assassin's Creed](#)

[Beat Saber](#)

[Minecraft](#)

[No Mans Sky](#)

[League of Legends](#)

[Elder Scrolls](#)

[Any of the Lego Games](#)

[Legend of Zelda](#)

[Ratchet & Clank](#)

[Dark Souls](#)

[Terraria](#)

[Dance Dance Revolution](#)

For more game suggestions, information, and reviews (beyond Amazon) on all kinds of games, check out one of our editor's favorite resources: [Board Game Geek!](#)



# Learn Science

## Conceptual Academy

Video-centric Learning Platform

### Your Guides

Best-Selling Textbook Authors



John Suchocki



Leslie Abrams



Paul Hewitt



Suzanne Lyons



Jennifer Yeh

## Complete Self-Study Science Courses

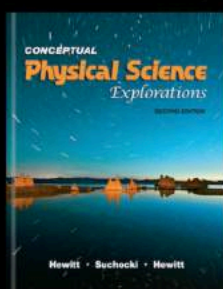
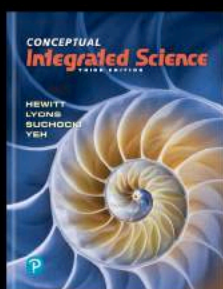
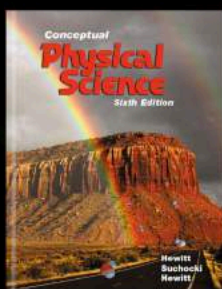
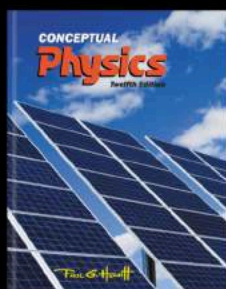
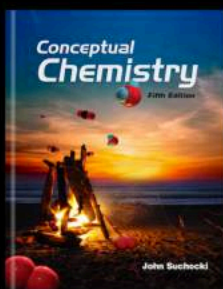
(Grades 7 - 12)

- Textbooks
- Video Lessons
- Podcasts
- Worksheets
- Study Advice
- Tutoring Network
- Interactive Simulations
- Lab Activities
- Automated Homework
- Automated Gradebook
- Teacher Resources
- Full Tech Support



SEA  
RECOMMENDED

Visit our homeschool support site: **LearnScience.Academy**



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# Entropy: The Spreading of Energy

A Hands-on Science Series from Conceptual Academy

Tools Needed: pennies, dice, pencil, large sheet of paper

Energy is a wonderful thing to have. With energy, things can get done. Physicists define energy as the capacity to do work. The more energy you have, the more work you can do. In many ways, energy is analogous to money, which you can spend to get things done. The more money you have, the more you can get done.

Energy, like money, has a tendency to spread outward from where it is concentrated to where it is more dilute. Consider a hot campfire. The energy of that campfire flows from the heat of the burning embers outward to the cooler surroundings. Likewise, consider having a pile of money. Sure you can hold onto it for a while. But the general tendency is for that pile of money to be spent on various items and services.

Entropy is the word we use to describe the tendency of energy to spread itself outward. If energy is like money, then “entropy” is like the spending of that money. Amazingly, it’s the tendency of energy to spread itself outward that is the underlying driving force of just about anything you have ever witnessed: The burning of a campfire, the cooling of a cup of coffee, a thunderstorm, life itself. Any process you see happening “naturally” all on its own, is being driven by the tendency of energy to spread itself outward. This is spelled out by the second law of thermodynamics.

Because energy is always dispersing, we say that “entropy” is always increasing. Yes, there may be times when energy gets concentrated, such as during photosynthesis. But over the long run, the net result is that the energy gets dispersed.

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**“Any process that happens by itself results in the net dispersal of energy”**

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Our sense of time is deeply connected to this concept of entropy. As we witness entropy increasing around us, we get the sense of time moving forward. Consider: what might you think if you saw smoke moving back into a fire? You would think time is moving backward!

To learn more about entropy, explore this short video: <https://www.youtube.com/watch?v=qRIIPH20Ge4>

### Activity: Entropy Simulation

*Hypothesis: Energy tends to disperse from where it is concentrated to where it is dilute. The reason for this has its roots in probabilities.*

Each penny represents an atom in two dimensional space. If heads, then the energy content is high. If tails, the energy content is low. On paper, lay out many pennies all in the tail state, except for a single penny in the very middle in a head state. Shift the pennies so there is a pentagon of five low energy tail pennies surrounding this one higher energy head penny.



Energy can be transferred between atoms upon their collision. By analogy, a fast moving billiard ball may hit another billiard ball and come to a complete stop, while the hit ball is shot forward. There is a transfer of kinetic energy from one ball to the next. A similar thing can happen between atoms.

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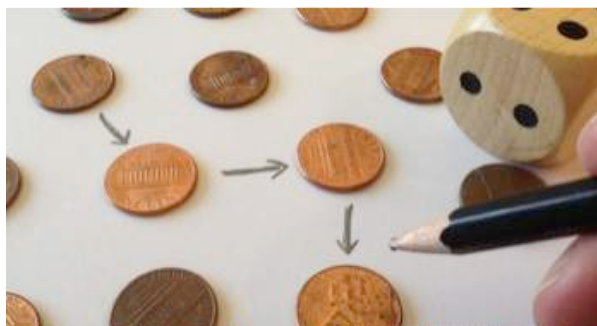
Energy tends to disperse from where it is concentrated to where it's dilute.



In this simulation, energy will be transferred between pennies. How so is determined by a 6-sided die. Each roll of the die represents a unit of time, such as a nanosecond. At zero nanoseconds, the central penny has the energy. Roll the die to determine which atom will have the energy at 1 nanosecond.



If you roll a 1, then this means the central penny is holding onto this energy. For a 2–6, draw an arrow to the neighboring penny receiving the energy. Flip the coins to reflect any new energy state. Continue this process to map the path of the energy over the course of at least 8 nanoseconds.



Repeat the above procedure, except start with three hot pennies together in a triangle in the center of some fresh paper. For a single nanosecond, you'll need to roll the die three times (once for each penny).

## Questions:

- Is it possible for 3 units of energy to remain all bunched together? Is this likely?
- If energy ever only stayed in one place, would there be such a thing as time?
- If energy instead always became more concentrated, would time appear to be moving backward?

Until next time, good science to you!

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Conceptual Academy is a video-centric learning platform used by colleges and high schools for introductory science, now available for homeschools, grades 7–12. Thank you for visiting our dedicated homeschool support site at [LearnScience.Academy](https://www.learnscienceacademy.com)





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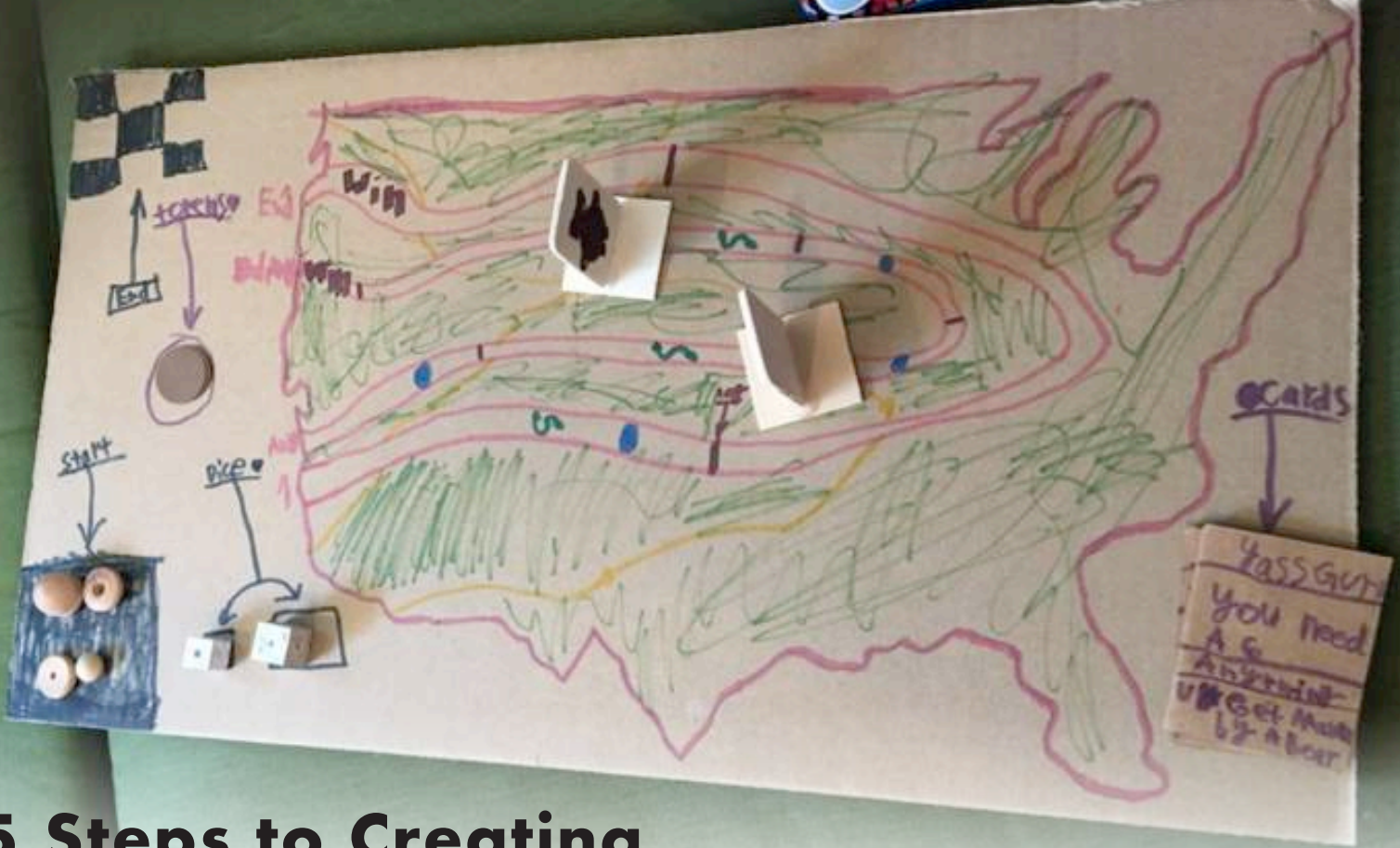
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# 5 Steps to Creating Your Own Board Game

Written by Samantha Matalone Cook

1. Select a theme. For example, your game could be based on your favorite animal, subject, or fandom. Once you have some ideas, stop and read all the instructions for this project. Understanding the entire process will help you at each stage of your game design journey. Once you've done that, come back and focus on your game development in each of steps 2-5.

2. What kind of game are you creating? Is it a roll and move game or a deck-building game? Area control game or legacy game? You can [look up the different kinds of board games](#) for inspiration. What is the objective of the game? Is it cooperative? If not, how do you win? How many people can play the game? Who is this game designed for?

Start writing down rules and game play ideas you have. Keep it simple at first, you can always make it more complex as you prototype your game.

---

***Prototype: this word means to make a preliminary, or first, model of something. You create a prototype, and then test to see how it works. You can continue making new prototypes until you have the final version of what you are making (in this case, a game). Prototyping is important because it allows us to see how our design works and what changes need to be made in order to get the best possible version of our ideas.***

---

3. Sketch out what you think your game might look like and make temporary board pieces and cards as needed so you can prototype your game. How a game looks will depend a lot on how it is played. You may want to look at games you already own, or that are on the shelf at the store. Games are designed to appeal to players, and the visual art of a game is just as important as how interesting or fun it is to play.

4. Take your prototyped rules and sketches and play your game a few times. You can play by yourself (if your game is multi-player, you can play the role of one or more others) and then play with your friends or family, using them as testers. What works? What doesn't? Is there information missing? Does anything need to be changed on your sketches? What materials should your game pieces and board be made of to hold up to being played with and to make playing fun?

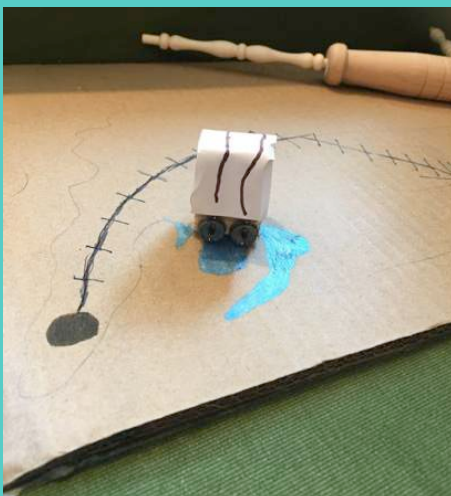
Play as many times as needed to collect as much feedback and information as you can. You may need to create new prototypes in order to get to the best version of your game. Redesign and prototype as many times as needed. When you feel your game is ready, go to step 5.

5. You are ready to make the final version of your game! Use higher quality materials to make your board, game pieces, cards, and any other part of the game. You can use art supplies, computer programs such as Inkscape or Illustrator, and machines such as 3D printers, laser cutters, and Cricut machines to make a more polished version of your game. If you are using a laser cutter or 3D printer, [Thingiverse](https://www.thingiverse.com/) is a great resource for free pre-designed pieces. You could also re-purpose objects or old game pieces from around the house for your game.

Type or write up a manual for your game that includes a description of the game, the rules, any tips you have on playing the game, and a game developer biography (that's you!). You may also want to create a box (you can use a shoe or shipping box if that's easier) to contain your game. Don't forget to design the outside of the box to advertise the game within. You can look at games you already own for examples.

Finally, share your game with others. Perhaps throw a game launch party and have friends over to play!

Enjoy your new game!



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

[www.samanthamatalonecook.com](https://www.samanthamatalonecook.com)

# Roast Sausages & Smushed Birthday Cake

## Instructions:

### Roasted Sausages Recipe

1. Heat oven to 425 degrees F.
2. Rub oil on sausages.
3. Sprinkle with salt and pepper.
4. Prick sausages 3 to 4 times.
5. Roast sausages for 25 to 30 minutes, turning 2-3 times.

### Cake Recipe

1. Heat oven to 375 degrees F.
2. Sift all dry ingredients listed under the cake you are making in a greased 8-9-inch baking pan. If making a chocolate cake add the cocoa at this step.
3. Mix all wet ingredients except cider vinegar. Then mix this into the dry ingredients until they are well mixed.
4. Add cider vinegar. Mix thoroughly.
5. Put in oven and cook 25 to 30 minutes.
6. Cool completely.

### Frosting Recipe

1. With a mixer, mix all ingredients except decorating icing, until smooth.  
\*If it is too thick add more milk.
2. Frost cooled cake.
3. Write "Happée Birthdae Harry" on frosted cake with decorating icing.

### Oven Temp.

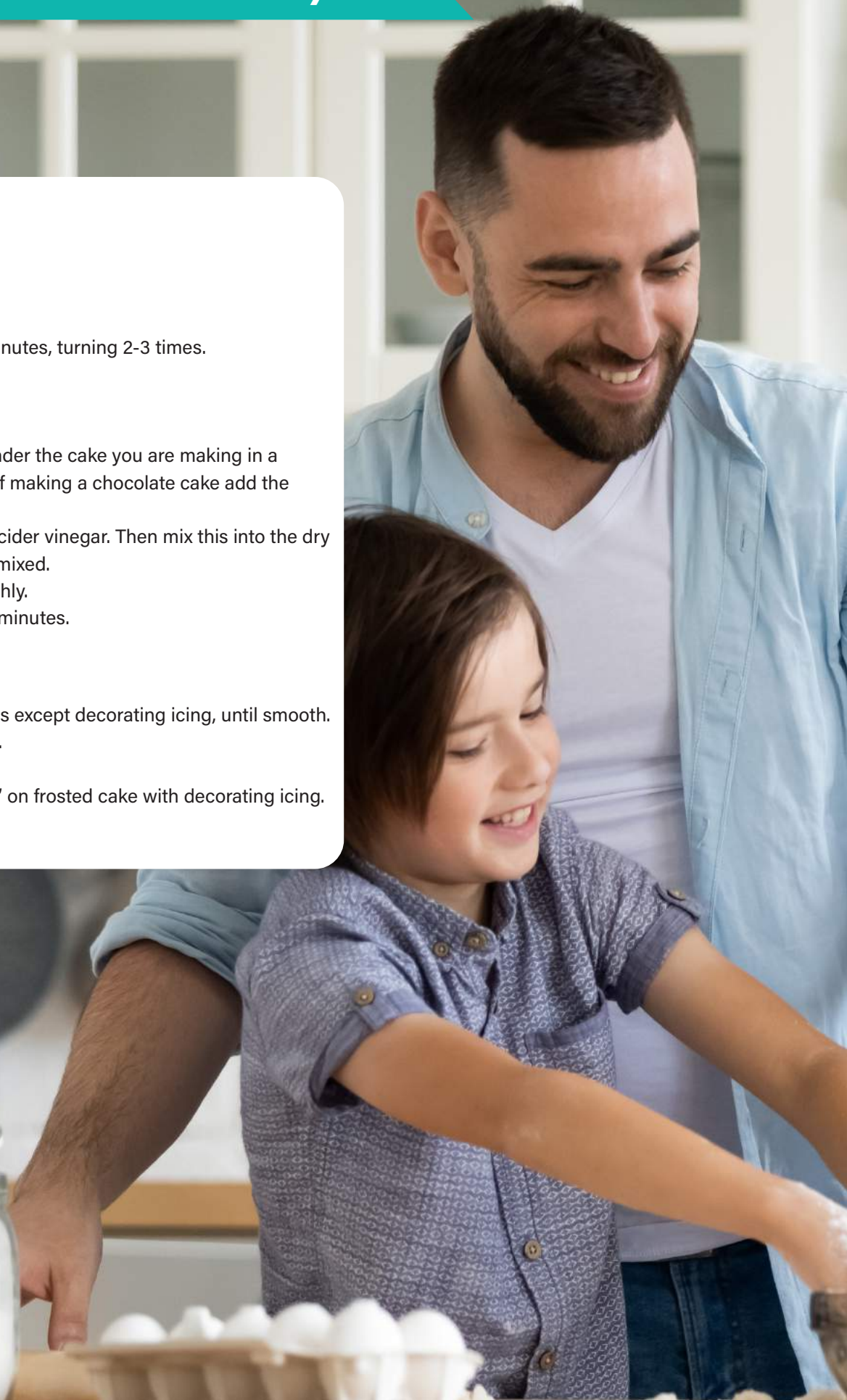
375 degrees F

### Cooking Notes

With appropriate substitutions, can be made without gluten, meat, or dairy.

### Dietary Information:

Gluten, Sugar, Meat, Dairy



## Ingredients:

### Sausages

- Oil to rub on sausages
- Salt and pepper to taste
- 1 to 2 Sausages per person (Vegan Sausages can be used)

### Cake

- 2 cups flour (You can use gluten-free flour)
- 1 ¼ t baking soda
- ½ t salt
- 1 ¼ c sugar
- 2/3 c vegetable oil
- 1 to 1 ¼ cup water (Use 1 cup for white cake & 1 ¼ cup for chocolate cake)
- 2 ½ T apple cider vinegar
- ½ cups cocoa powder (Optional, if you want chocolate cake)

### Frosting

- 3 ½ cups powdered sugar
- 3 T nondairy butter
- 3 T milk (dairy or non-dairy)
- 2 t vanilla extract
- Red or pink food coloring
- 1 tube decorating icing writer



This recipe comes from our upcoming Project Based Learning unit series featuring the Wizarding World! Some of you may have caught the reference. You can learn more and pre-order the first unit in the series at [SEA Books & More](#).

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# How Two Homeschooled Kids Became Game Developers

Written by Miro Siegel

I'm Miro Siegel and I am the co-founder of Tabletop Heritage, alongside Brandon Conley. Tabletop Heritage is a game company that produces old school RPG games and systems based on ancient history, mythology and culture, with the hopes of providing players with fun experiences while also exposing them to real world themes.

Our first game, Mythos (which is based on Archaic, Classical and Hellenistic Greece) is a labor of love. I met Brandon in 2018, in Thailand. We were both on a teen retreat with Project World School, and immediately found common ground on a lot of things ranging from media and games to interest in mythology and world cultures. One day, sitting in a kayak on the southern Thai sea, we began to have a conversation (one which spanned over 5 hours) which would later become the early foundation for our first game. Brandon and myself, being avid D&D players ourselves, started off with a series of escalating 'what if's' and 'wouldn't it be cool's' that eventually brought us to our inspired conclusion: we needed to make our own game system.

The premise was simple: we were going to make a tabletop RPG set in ancient Greece where players played as heroes, demigods and champions and relived the legends and epics of old. What followed, however, was anything but simple.

Though both Brandon and myself are experienced gamers, neither one of us had any

experience in game design or development. Every step in the process proved to be a learning opportunity, from building a functioning game engine to balancing, or researching source material and figuring out how to translate that into our game. Once we began development, it was clear to both Brandon and myself that we had a lot to learn. And so, that's exactly what we did.

I turned what was previously an interest in mythology and history into a fully blown passion. I dove into every source on the subject that I could find, and delighted in translating the epic form into game terms. I have always been very detail oriented, and have never been content with being just close enough. This is why I expended so much effort in making our game as truthful to the source material as possible.

Brandon on the other hand focused more on the mechanical workings of our game. Numbers, probabilities and systems fell more under his domain. He tweaked, patched, and adjusted our game tirelessly to make sure that the gameplay was smooth and functional.

It is because of me that our game is what it is, and it is because of Brandon that it works as well as it does. Of course, we were both involved in most of the steps in this process, but acknowledged that the two of us brought something special and unique to the design table, and we hope that this reflects in the experience we want to bring to players. What's more, is that we learned that we were good at game design, and that new-found confidence has propelled us into developing something that we are proud of. And we would have never known if we didn't just try in the first place.



Gameschooling is rich in educational value, for both the player and the designer. When Brandon and I sit down and develop new content, we're exercising our logical and creative thinking, and when we playtest we are practicing strategy and cause and effect processes.

In addition to all of these specific skills we had to learn and practice, we also wound up learning crucial soft skills such as efficient communication, compromise, reasoning and the willingness to let go of the things that simply weren't working.

We've learned how to collaborate with one another, how to build each other up to get to where we want to be, and that's something that will stay with us forever.

Mythos is still currently in development, in an early alpha stage, and most likely won't be ready for release for another year and a half or so. You can (eventually) find more information on it at: [tabletopheritage.com](http://tabletopheritage.com)



Miro Siegel is co-founder of both Tabletop Heritage and Project World School. Having grown up traveling the world with his mom, Miro discovered a deep fascination in ancient history and mythography first hand.

Gaming was his other great passion, as he found he could connect with narratives and ideas in the context of games with great ease, and was intellectually stimulated by the complex problems they often provided. Eventually, Miro found an intersection between history and gaming and founded Tabletop Heritage alongside Brandon Conley. He can be reached at: [Miro@tabletopheritage.com](mailto:Miro@tabletopheritage.com)



Brandon Conley is a co-founder of Tabletop Heritage and Freelance Photographer. His main job is being focused on the mechanical and number aspect of Mythos, but also hopes to lead the visual art for Tabletop Heritage games in the future.

He's a huge overthinker which leads to answers and questions alike, an approach that has helped him in his work on 'Mythos.' Game design has been a great opportunity for him to really dive into his own way of thinking head first. If anyone wants to talk games or discuss ideas, don't be shy! He can be reached at: [Brandon@tabletopheritage.com](mailto:Brandon@tabletopheritage.com)

# Oculus Quest Review

Written by Simon Cook

Virtual Reality (VR) Headsets are getting more popular as the technology for VR games gets more advanced. There is a wide variety of games either out or being developed that are good-looking and immersive. This technology is only going to get better. In fact, some say that by 2022, [we will be able to use full dive VR](#), which converts physical data into VR data and vice versa. It's a full body experience that communicates information to and from the brain. The concept of full dive VR was thought of long ago but was popularized by the anime known as *Sword Art Online (SAO)*. Many people understand the concept of full dive VR from the book and movie *Ready Player One* as well. Even if we aren't there yet, VR technology has come a long way and the right VR Headset can make a big difference in your experience.

The most popular VR Headsets on the market are the HTC Vive, the Valve Index, and the Oculus Rift. They all perform well and are somewhat affordable, but they all need to be connected to a computer that meets specific requirements. Recently, Oculus came out with a stand-alone VR Headset called the Oculus Quest, which does not require a computer to function. The Quest can be taken anywhere and only needs a charge and WIFI to work, so you can use it wherever you want. The controllers only use a single AA battery each and can last upwards of a day of charge. The headset has fantastic graphics and little to no lag which is great for a computer-less headset. The Oculus store has a wide variety of VR games, and more specifically it has many games for the Quest, from *Beat Saber* to *Arizona Sunshine*. The Oculus Quest is capable of running games with high fps (frames per second) and lots of detail. Personally, my favorite games so far are *Beat Saber*, *Vader Immortal*, and *Apex Construct*.

When measuring against the other VR Headsets, the Oculus Quest compares nicely. Its graphics aren't quite as good, but they are still high quality. It's comfortable to wear and you can have a wider range of movement because you are not tethered to a computer. This stand-alone feature is definitely one of the best things about the Oculus Quest. Another cool feature is that you can get a long USB-C to USB-A cable (Oculus sells a 5m version on their website) and connect it to a computer. Using the Oculus desktop app, you can enable Oculus link (beta), which allows you to play computer VR games, as you would with a Rift.

I highly recommend the Oculus Quest to frequent travelers, people who want an affordable VR headset, or people who just want a Headset that is easily transported. I have both the Valve Index and the Oculus Quest and think the Quest holds its own. It may not be quite as good for high-performance games but it still works really well and would be a good starter VR Headset.



Simon Cook is a dedicated gamer living in the Rocky Mountains. He likes to play all kinds of games, from VR to RPGs, loves making bad jokes, and reads a ton of manga. He has always been home educated, and is now creatively following his interests while homeschooling high school.

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# Turning the News Into Writing Prompts

Written by Michelle Parrinello-Cason

I'm a huge fan as a scholar and educator of interdisciplinary work that helps build skills and reflection across different areas of learning. I'm also a huge fan as a busy homeschooling mom of being able to tie different goals together. Social science and writing accomplished for the day in a single task? Sign me up!

With that in mind, I think that combining current event studies with writing prompts is a great strategy. It helps learners reflect more deeply on what's going on around them, lets them build writing skills in a contextualized and meaningful way, and provides ready-made content for busy parents who don't have to scramble for an assignment.

The great thing about combining the news with writing is that you can do it at any grade level and with lots of different goals in mind. I've arranged these ideas in order of complexity, so if you're looking for easier/simpler ways to turn the news into a writing prompt, the first few will best meet your needs. If you're looking for more complex/challenging ways to do it, those later on the list will be a better fit.

## Comprehension Check

Listening to, reading, or watching the news is an excellent time to practice comprehension and notetaking skills that will be useful throughout life. The news is also a great place to practice identifying key points because the clips are typically short and direct, giving even young or struggling writers a great opportunity to break ideas down into their simpler forms.

Questions of this variety may ask writers to simply summarize what they read, to pull out three main ideas, or to imagine themselves explaining it to a specific audience to practice contextualizing it differently.

- What are the 5 W's (who, what, when, where, why) of this story?
- Write a paragraph that sums up what you learned about this topic.
- What are the three most important things to know about this story? Write each one in a sentence.
- How would you explain this story to a kindergartener? To someone your own age? To an adult?

## Finding What's Missing

Critical thinking skills allow us to question the narratives we receive through media and attempt to fill in the gaps of what is necessarily and inevitably an incomplete picture.

The following writing prompts will help learners examine the story for biases and craft questions that could make the story more complete.

- What questions do you have after hearing this story? Who could best answer them? Imagine that you are going to conduct an interview with that person or group of people. Write the questions you will ask them. (Note: The person could be an expert on a specific topic relevant to the story, someone directly involved whose side of the events has not yet

been reported, or someone who is likely to be impacted by the events in the story.)

## Exploring Opinion

Understanding the news requires knowing the difference between different types of journalism. Find a straightforward informational piece, an opinion piece, and a more in-depth look at the same topic. (For example, you could use this [straightforward report](#) on the Iowa caucus technical problems, this opinion piece on [why the Iowa caucuses should end](#), and this [in-depth look](#) at the app at the center of the debate).

Building some writing prompts around these comparisons allows students to practice

key media literacy skills while also building compare-contrast writing skills.

- What do you notice about the way the three pieces are written? What's notable about their length, style, sources, and overall approach? Who do you think the audience is for each piece? What goals do you think the writers have for creating them? Write your observations in a 3-4 paragraph paper.

- Read 2 or 3 reports on a topic and craft an opinion piece of your own relating to the subject. Be sure to use quotes and references to the article as necessary to establish the facts of the situation as you explore your opinion.



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## Making Connections

Too often, the news can seem like a buzz in the background without much time for reflection or really connecting it to our own lives and other experiences.

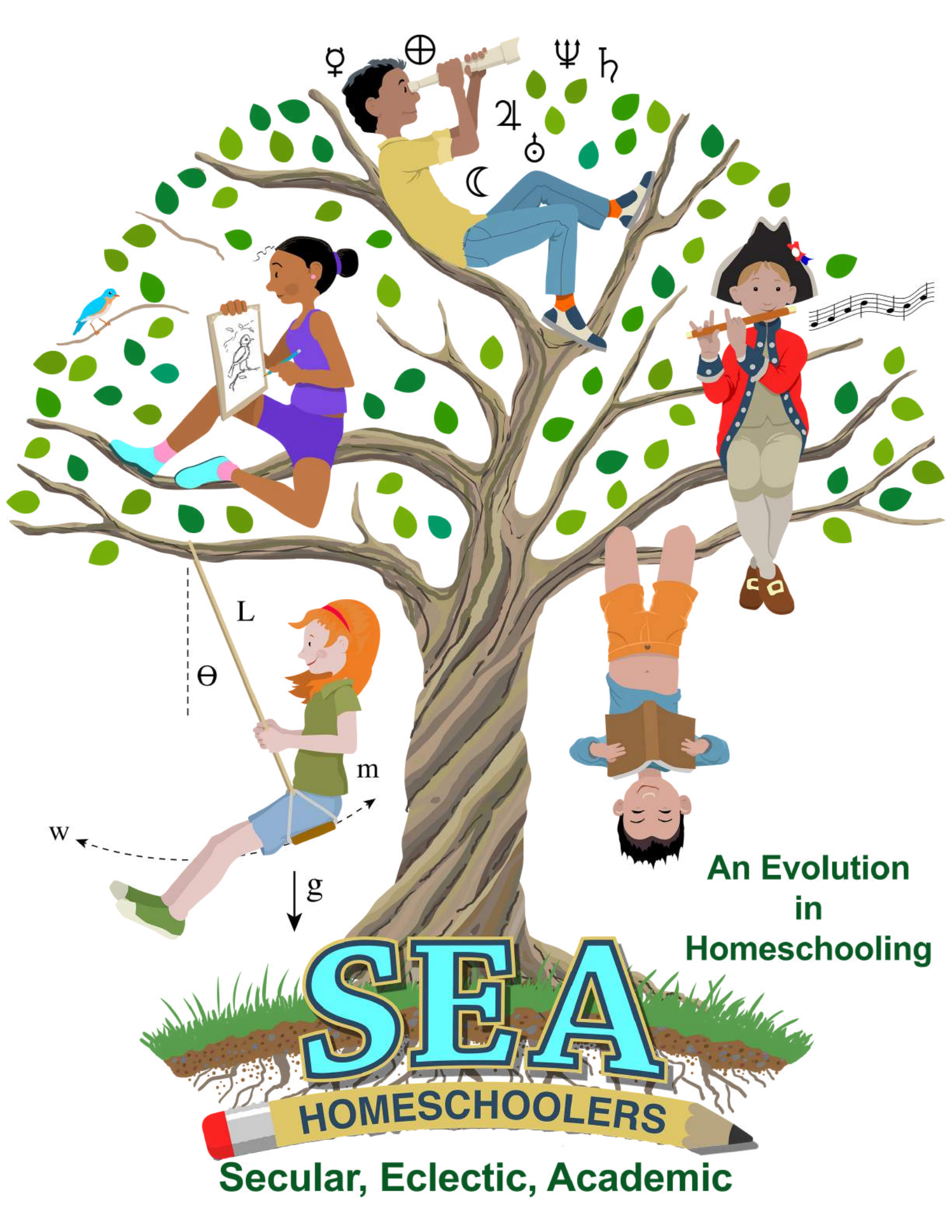
These writing prompts challenge learners to consider current events and really connect them to other types of knowledge and experiences in order to remember them more meaningfully.

- Connect a current news story to a personal memory from your own life. Write a 2-3 pages that tell your story and explain how the current event relates to it.
- Connect a current news story to a song. Use lyrics from the song to demonstrate the connection between the two. Write a 2-3 page paper to explain your thinking.
- Connect a current news story to a film or television show. Pay particular attention to any parallels between characters represented in the film/show and people presented in the news story. Explain how the film/show could be used to better understand the current event in a 2-3 page paper.

Michelle Parrinello-Cason has a Ph.D. in English and has taught as a home educator and college professor. She homeschools two delightfully energetic children and runs [Dayla Learning](#), a site dedicated to “homeschooling the humanities with humanity” that provides full-semester high school writing classes. She focuses on reaching learners where they are and giving them the foundational tools to learn well no matter what the future holds.

Watching, reading, or listening to the news on a regular basis is an excellent habit to build, and you don't need to assign a writing prompt every single time. However, occasionally digging deeper into a news story helps develop the kinds of thinking and observation skills that will make learners better equipped to understand current events for the rest of their lives





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