One of the best things about working at The Geneva School is that we as faculty get to be lifelong learners. During our faculty pre-planning, our faculty meetings, and during our occasional faculty in-service days, we get to dive into topics that lead to our professional development and ultimately enrich the education your child is receiving. As you have probably already figured out from various sources, this year we are studying two topics. Our theologian of choice is John Calvin, so designated because this year marks the 500th anniversary of his birth. The theme for this year is the moral imagination. I considered writing about Calvin then quickly recognized my limitations, so I decided to reflect on *Tending the Heart of Virtue: How Classic Stories Awaken a Child’s Moral Imagination*. Vigen Guroian, the book’s author, will be speaking at Geneva in February, so we have been enjoying his book and looking forward to the prospect of his visit. While it may seem odd that the adults that teach your children are studying *Pinocchio* and *The Velveteen Rabbit* at faculty meetings, when you dive a little deeper, it makes total sense. Cultivating your children’s imagination is one of our greatest gifts we can give to you and one of the reasons we want so badly to see your children stay at Geneva for all 14 years. What we aspire to do is not easily accomplished in a couple of years. But unlike the thesis of our faculty study, I think the imagination goes beyond interacting with our world filled with altruistic values; it goes to our very ability to think. As it applies to science, I am now terming this “scientific imagination” and will elaborate on how I think this is important, perhaps even essential, to add to the science student’s tool box.

Somewhere along the line someone realized that science was very difficult to understand, so they started reducing everything to algorithms. Some of the greatest discoveries of physics and chemistry have been reduced to mere formulas. Gravity, arguably one of the most significant discoveries of the scientific revolution, was taught to me as a formula. Plug in the masses of the two objects and the distance between them, add a constant, and you have the gravity. In this calculation there is no imagination and no wonder, just computation. Math has suffered a similar fate. One does not have to understand the how and why of multiplying binomials, you just need to know the foil method. This is not problem solving, but algorithmic imitation. This methodology was the very way I learned much of what I know about science and math. I would sit in class, watch the teacher model problem solving, then go home and try to catch the subtle changes in the homework problems. I don’t want to dismiss imitation as unimportant, for it is definitely essential and is one of the tools of learning that we teach, but when it comes to the mastery of math and science, this asset soon becomes a liability, as it was in my own experience.
I often tell my classes of the day I finally understood what a mole was. I was a senior in college and was teaching a laboratory course to freshman. During my prelab lecture, it hit me. Avogadro’s number of atoms of any element has a mass numerically equivalent to the atomic mass on the periodic table. For example, 1 mole of carbon atoms would weigh 12.011g; 1 mole of hydrogen would weigh 1.0079g, and so on. Now by this point, I had successfully done calculations involving the mole for about five years. You see, I had mastered the algorithm. I could do these problems forwards and backwards: however, I never actually knew what I was doing. I had no imagination. I never viewed this exercise as anything more than algorithmic problem solving. Sadly, I didn’t even recognize this as a problem until I started my research project in graduate school. When my algorithms began to fail and I tried to address problems that were real and not in a textbook, I had no idea what to do. I had graduated Valedictorian from high school, and summa cum laude from the honor’s college at Southern Mississippi, and I couldn’t think. I had no scientific imagination. So it was back to the drawing board and quite an arduous process, but I did learn to think. And luckily, it was just in time, as I started my teaching career immediately after I graduated from the program. I finally could think, and I could teach others to think. And at the root of this thinking is my imagination. I could look at a problem, and not try to remember an algorithm, but draw on my memory and imagine a solution.

Sadly, I see the same limitations in my students. When I give them lab work, or an open ended problem, most have a really hard time. But that is exactly the reason I push them in that direction and why I’m so glad that the teachers they’ve had before me at Geneva have the same desires. We often say that students just can’t “think.” While that works as describing the systemic problem, I think it also works to say they have very little scientific imagination. It’s not that I don’t think it’s there; it has been squelched. Take Legos for an example. When I was a kid, my brother and I would dump all of our Legos out on the floor and build whatever we wanted. Now, you buy kits with instructions. While it is still fun (I have a 6 year old and 3 year old), it is not the same. It turns out kids don’t need their imaginations very much anymore, nor do we adults if we are being honest. Even Disney World goes through great trouble to make sure our kids don’t need imaginations. If you read C.S. Lewis’ description of Narnia, you imagine what it would be like to be there. But if you watch the movie, someone else has done the imagining for you. Just like the Legos and in math class, we have been given an algorithm rather than an imagination.

This is exactly why it is so exciting as adults to revisit these stories. By developing our imaginations, we are able to transmit them to our students. If everything goes as planned, our students will not only develop their moral imaginations during their years at Geneva, but they will also develop their scientific imaginations. The same can be said of their spiritual imaginations. I hope they learn to sit and imagine what heaven will be like, to imagine what walking with Jesus will be like, to imagine what it will be like to see glory revealed as the New Kingdom is established on earth. They can already imagine so many worldly things due to what they have seen in movies, but I love the idea that they could imagine something greater. That is why we labor and toil not just for their moral imaginations, but also for their scientific and spiritual imaginations. Tending the heart of virtue is part of what it means to be a Christian educator. We can’t impart what we don’t have, and that is why this year we are reading children’s stories at faculty meetings.