

# Letter to a Young Scientist

## *A Science Legacy*

By MARTIN E. ENGLISH, DVM & MACKENZIE E. ENGLISH, MS

**Martin E. English, DVM**, serves as Director of the Junior Academy Council of The Ohio Academy of Science. Dr. English grew up in western Ohio and, at age 12, received early experience by treating an injured horse. In high school he participated in 4-H and also in science fairs, culminating at the State Science Day. He chose his career path in high school while assisting a local veterinarian. After earning his doctor of veterinary medicine degree at The Ohio State University in 1981 he returned to his home town and began a practice. He recently retired—at least from his veterinary practice—after 40 years; however, his multiple advocacy efforts in support of junior high and senior high school STEM education continue at full force.

**Mackenzie E. English, MS**, Martin's son, became fascinated with dinosaurs in kindergarten, but never grew out of it. As early as junior high school, Mackenzie was involved in excavations of dinosaur fossils in Montana and Ordovician marine fossils in Ohio. He participated at State Science Day. After earning bachelors' degrees in geology and archaeology from the University of Cincinnati, and a master's in biology from Wright State University, Mackenzie worked for 7 years at the Boonshoft Museum of Discovery in Dayton, Ohio. He now teaches middle school gifted science students.

EVERY SCIENTIST, ENGINEER, MEDICAL professional, or other individual who entered into a STEM career had, at one point in their background, someone and/or something affect their life in such a way as to start them on their career path. For most of us, it was a series of events and people that were involved in shaping and guiding our lives. Hopefully you will recognize what events have shaped your life, and who has helped guide you along your path. We also ask that when you are well into your career you will recognize a responsibility to guide and assist the next generation of young scientists that follow you.

***Hopefully you will recognize what events have shaped your life, and who has helped guide you along your path.***

### **A Long Career Journey**

**MARTIN:** I grew up in Tipp City, a small Ohio town, with the typical family dog and assorted small house pets. On Christmas Day when I was twelve, we loaded up in the Jeep, in a foot of snow, and drove to the country where I was introduced to my first horse (event one). She was nothing fancy, but that didn't matter. I joined a 4-H club and started learning. That summer my mare suffered a severe laceration to her leg. The stable owner and my father were both out of town. My mother called the only other person we knew with horse experience, Officer Ron Ré of the local police department, who recently transferred from the New York City Mounted Police (person one). He provided emergency first aid and helped us find a large-animal veterinarian, Dr. Warren J. Lavelle (person two). After a long series of treatments, the wound finally healed and I had my first real veterinary experience (event two).

As a freshman in high school biology class, I had the opportunity to participate in The Ohio Academy of Science's Science Day program. Working with what was both familiar and available to me, I chose to study equine parasitology. With guidance from teachers, the local hospital lab, and others, I brought home a Superior from State Science Day (event three). The following summer I began assisting Dr. Lavelle on farm calls and made the decision that this would be my chosen profession. The story from that point on is similar to most other future veterinarians: work for a vet and possibly on a farm or ranch, study hard, and persevere.

I graduated from The Ohio State University College of Veterinary Medicine in 1981, came back to my hometown, and opened my practice. Forty years later, I am retired with my wife (also of 40 years), our family, and of course, horses. The details of that long journey are less important than the message that I hope you will take away from here.



### Paying it Forward

Previous “Letter to a Young Scientist” submissions have focused on several themes: publishing your research, collaborating with other researchers, choosing to complete research which answers your own questions, understanding that you will continue learning throughout your lifetime, embracing changes in direction, and recognizing your mentors. All are important topics, but it is the last one that I wish to emphasize. Those individuals who helped guide you down your path did so voluntarily. At some point in their past someone helped them, and they made a conscious effort to *pay it forward*.

Shortly after opening my practice, I began *giving back* to my community by becoming a 4-H horse club advisor, serving as an EMT on the local emergency medical services department, and (later) serving as a local elected official. More relevant to this story is how I became involved in science education.

My high school alma mater gave up participation in the Science Day program around 1990. When my son was a junior in the same high school, the Science Day was reinstated. He did participate and I attended. My son did well and went on to District and State, but the local event itself was disappointing. Students received a certificate, a ribbon, and a cookie. Almost no parents were there to encourage the students, and school and community recognition was minimal. The following year, I went to other local professionals, businesses, and community organizations; they provided volunteer judges and several hundred dollars in awards. Sponsors paid the District Science Day registration fees for those students who qualified.

That same year I found some like-minded individuals and we formed a non-profit 501(c)(3) corporation, not just to support the local science fair but to fund purchases of lab equipment, classroom technology and materials, field trips, and more.

***Since 2006, over \$110,000 has been donated and distributed for the benefit of local students and the school. Think what would happen if each of you were to help do something similar in your own community.***

***After a few years helping to build up the local Science Day—and witnessing the benefits it provided to the students—I learned that none of the other 28 public school districts in the four counties near us participated in the Science Day program.***

Since 2006, over \$110,000 has been donated and distributed for the benefit of local students and the school. Think what would happen if each of you were to help do something similar in your own community.

After a few years helping to build up the local Science Day—and witnessing the benefits it provided to the students—I learned that none of the other 28 public school districts in the four counties near us participated in the Science Day program. When I investigated, the reasons given by teachers and schools were lack of time, resources, and know-how. With many partners, a plan was developed to create four county-wide fairs and invite any public, private, or home-schooled student to participate. As a result, the 2014 County Science Days took place with participants from 14 school districts. The County Science Days had highly qualified judges, thousands of dollars in awards, and no cost to students. The program has grown since then, enough that The Ohio Academy of Science allowed us to form a new OAS District in 2015. As the appointed host institution representative to the Junior Academy Council, I was able to learn best practices from other, longer established, District Science Days, and apply these practices to our district. I also volunteered to serve as Director (chairperson) of the Junior Academy Council, a position I still hold. I hope to continue contributing to STEM education and student research programs for many years, but when the time comes that I must slow down, I have a backup plan. Meet my son Mackenzie!

### A New Career Journey Begins

**MACKENZIE:** How many future paleontologists can one movie create? Never mind the many inaccuracies throughout the entire franchise. I was five in 1993 when *Jurassic Park* debuted, and *T. rex* tee-shirts and a lunch box were mandatory for kindergarten. Seven years later, when the Cincinnati

Museum Center (CMC) hosted a *Jurassic Park* display, I was more excited to see the real fossils than the fake dinosaurs.

When classes began at Tippecanoe Middle School, my eighth grade language arts teacher gave us the assignment to write a letter to someone who we would like to meet. I wrote to Dr. Glenn Storrs, the vertebrate paleontologist at the Cincinnati Museum Center. The letter satisfied the assignment, and I thought no more about it until six months later when Dr. Storrs replied. After the usual words of encouragement, he invited me to attend the CMC

***When the Cincinnati Museum Center hosted a Jurassic Park display, I was more excited to see the real fossils than the fake dinosaurs.***

Dinosaur Field School the following summer. This was a one-week educational, hands-on excavation of sauropod fossils in Montana. Who says no to that?

Experiencing geology and paleontology in the field is nothing like the classroom, and I wanted more. I joined the Dry Dredgers, a group of professional and amateur paleontologists in Cincinnati, which included University of Cincinnati (UC) Department of Geology professors. They held lectures at UC, and field days around the tristate area. No dinosaurs, but lots of marine fossils. As a high school junior, I participated in our local Science Day. My project involved the preservation of a fossil collected in Montana; in fact, one that I had excavated two-years prior. Many trips to the CMC were required, but the project was completed. It was also agreed that I could return to Montana that summer for a longer period.

High school graduation was followed by five years at UC, which included geology field trips and several more summers of field work in Montana—plus an amazing three weeks in the Himalaya. I completed internships at the CMC in vertebrate and invertebrate paleontology, archaeology, and museum collections management, earning a BS in geology and a BA in archaeology.

My next step was undecided until an accidental conversation with a former biology teacher. His wife, Dr. Lisa Kenyon, was a biology professor at Wright State University. She was looking for a graduate student to assist with research. A master's degree in biology fit my goals,

***My next step was undecided until an accidental conversation with a former biology teacher... A couple meetings later, I was a grad student.***

and a couple meetings later, I was a grad student. The research was in adolescent science education, and involved inquiry-based learning. While my intentions were to become a fossil-collections manager in a museum, I knew that public education was a museum function as well.

### **What to do Next?**

Armed with another degree, now I needed a job. There were few open museum positions, so I fell back on my newly acquired science education skills and applied for a long-term substitute teacher license. That license remained in “like new” condition because, after only two months, I was hired as a science educator by the Boonshoft Museum of Discovery in Dayton, Ohio. During my first five years at the museum, I provided science demonstrations and instruction to students and adults: both at the museum as well as at school districts around the state. As the employee with the most laboratory background, I became the Laboratory Education Supervisor.

Then COVID-19 happened. The museum closed to the public—but not to education. The museum was already providing some online curriculum content videos to both schools and teachers prior to the pandemic; now that service suddenly became the priority. In the year that followed, I helped produce and render over 100 demonstration and instructional videos. These were made available for schools and students to use as part of their online, at home, instruction.

When schools reopened, many students were far behind in their learning. The museum offered a varied combination of science in box kits, video instruction, and scheduled classroom instruction options to area schools. By coincidence, my hometown school was conducting a Summer Academy in language arts, math, and science. In June 2021, the school contracted for a large assortment of museum services,

including a number of classes which I taught. There was a

bit of nostalgia being back in my old school. The program went well, and the museum received thankful reviews from the teachers.

### **Back in My Alma Mater**

Then, on August 10th, 2021, I received a text message: the local Board of Education office wanted to meet with me. I wasn't sure what they needed, but I was taking some vacation days and had the time, so I met with them the next day. Surprise! It was

*My message to a young reader is this: it is not only important to have goals but also to embrace opportunities when they are offered.*

that night, I decided this would be a good long-term career move. I completed the necessary paperwork the following day. I provided my letter of resignation to the museum, worked there for three days to complete some projects, and on August 19th I was in the classroom.

with human resources; this was a job interview. The middle school gifted science teacher had unexpectedly resigned, and they needed an immediate replacement. Several teachers and staff had offered my name for consideration. After much thought and discussion at home

### **Alternative Resident Educator License**

You might recognize that I did not have a degree in education, and you would be correct. I renewed my long-term substitute license as a temporary solution while completing the requirements for an Alternative Resident Educator License. This Ohio Department of Education program takes the applicant's education and career experiences into consideration as an alternative to completing an entire education degree curriculum. This license does require some testing and mentoring; however, it provides schools with the opportunity to hire individuals with different skill sets that, when combined with those of traditional teachers, can provide a richer education for students.

### **Moving Full Circle**

Essentially, I had come full circle: from an eighth grade assignment to an eighth grade teacher in the same school! It was definitely not planned, but well worth the journey—which is certainly not over yet. My message to a young reader is this: it is not only important to have goals but also to embrace opportunities when they are offered. It may not be obvious at first, but change in direction can be a good thing.