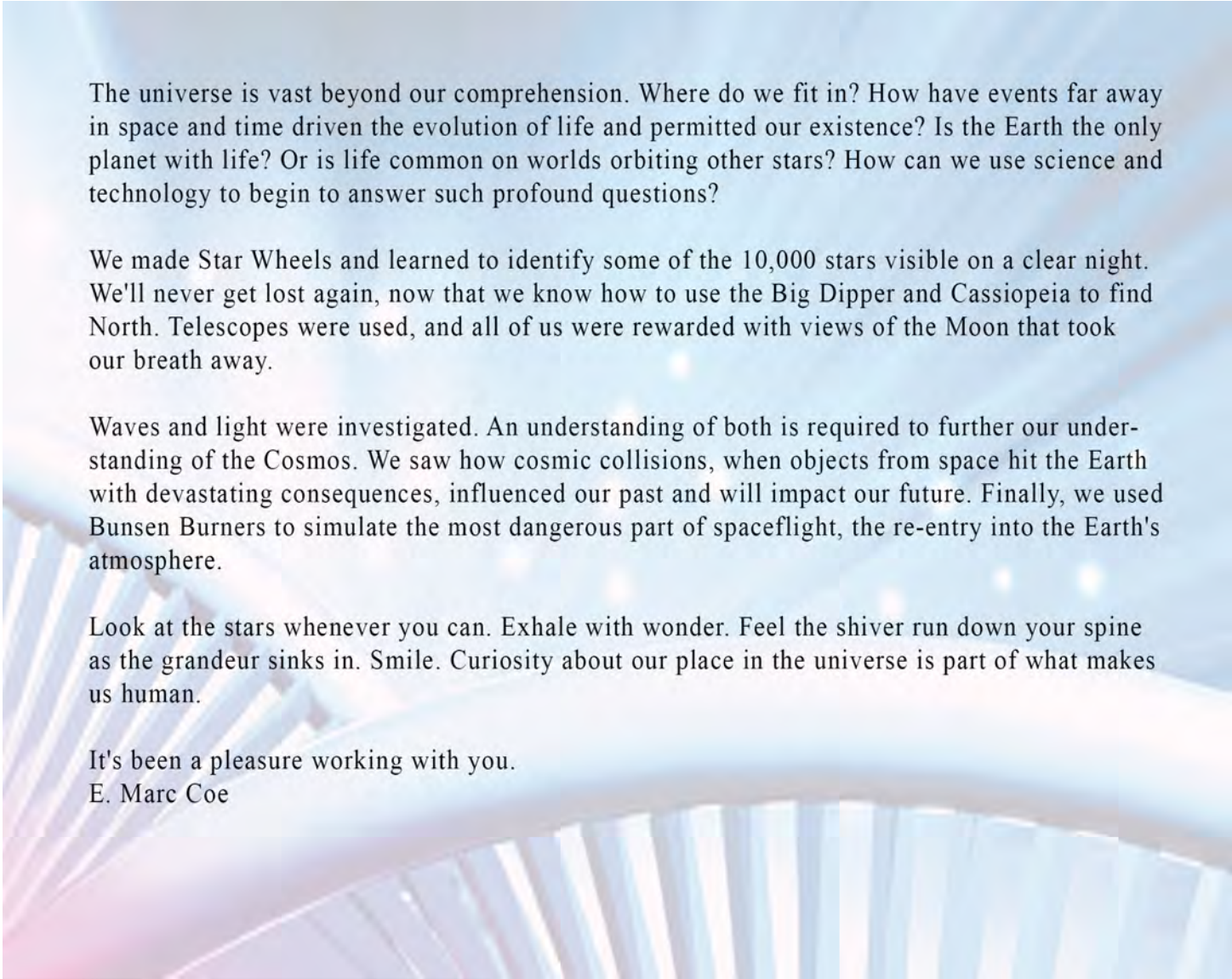




the stars
challenge

Explore the Universe
Winter 2019





The universe is vast beyond our comprehension. Where do we fit in? How have events far away in space and time driven the evolution of life and permitted our existence? Is the Earth the only planet with life? Or is life common on worlds orbiting other stars? How can we use science and technology to begin to answer such profound questions?

We made Star Wheels and learned to identify some of the 10,000 stars visible on a clear night. We'll never get lost again, now that we know how to use the Big Dipper and Cassiopeia to find North. Telescopes were used, and all of us were rewarded with views of the Moon that took our breath away.

Waves and light were investigated. An understanding of both is required to further our understanding of the Cosmos. We saw how cosmic collisions, when objects from space hit the Earth with devastating consequences, influenced our past and will impact our future. Finally, we used Bunsen Burners to simulate the most dangerous part of spaceflight, the re-entry into the Earth's atmosphere.

Look at the stars whenever you can. Exhale with wonder. Feel the shiver run down your spine as the grandeur sinks in. Smile. Curiosity about our place in the universe is part of what makes us human.

It's been a pleasure working with you.
E. Marc Coe



We began our explorations by studying gravity.



Even after a long day at school, we were enthusiastic and couldn't wait to get started!



Using careful observations, we investigated the "levitating" slinky.



We discovered that information takes time to travel through a system. This profound insight limits what we can know about the universe.



Technology has been extending the range of human senses for centuries. We are proud to continue the tradition.



Patience was required to calibrate the telescopes for proper usage.



Spacetime fabric allowed us to examine the universe as Albert Einstein envisioned it.





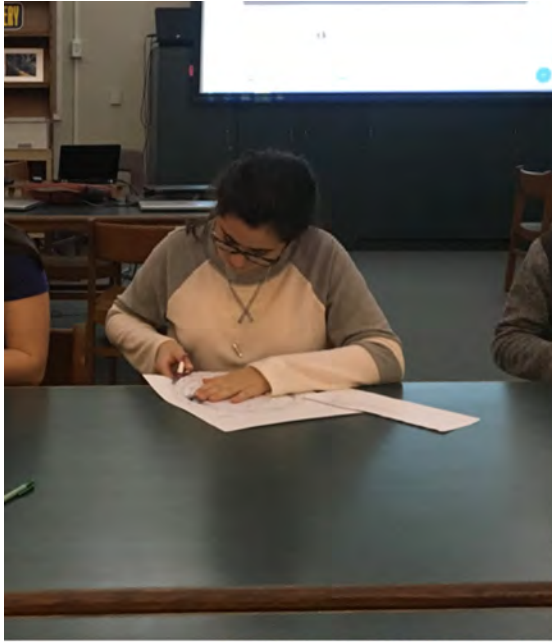
By applying the laws of optics, we were able to design our own functioning telescopes.



We discovered that telescopes project images upside down. Various ways to compensate for this were attempted.



Using our star wheels, we learned to identify constellations.





Most of the light in the universe is invisible to us. We were able to infer the presence of this light in several ways.

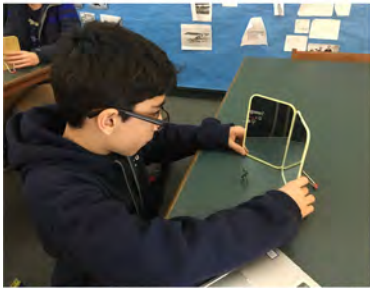


Light was trapped and reflections were explored.



In the future, humans may colonize other worlds. We saw that many problems need to be resolved for this endeavor to be successful.







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