
the stars
challenge
Explore the Universe
Winter 2012

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 idenitfy 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. Some of us mastered the skills required to operate a telecope, and all of us were rewarded with views of the Moon, Jupiter and the Orion Nebula 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 reentry 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. Curiousity about our place in the universe is part of what makes us human.

It's been a pleasure working with you.

E. Marc Coe

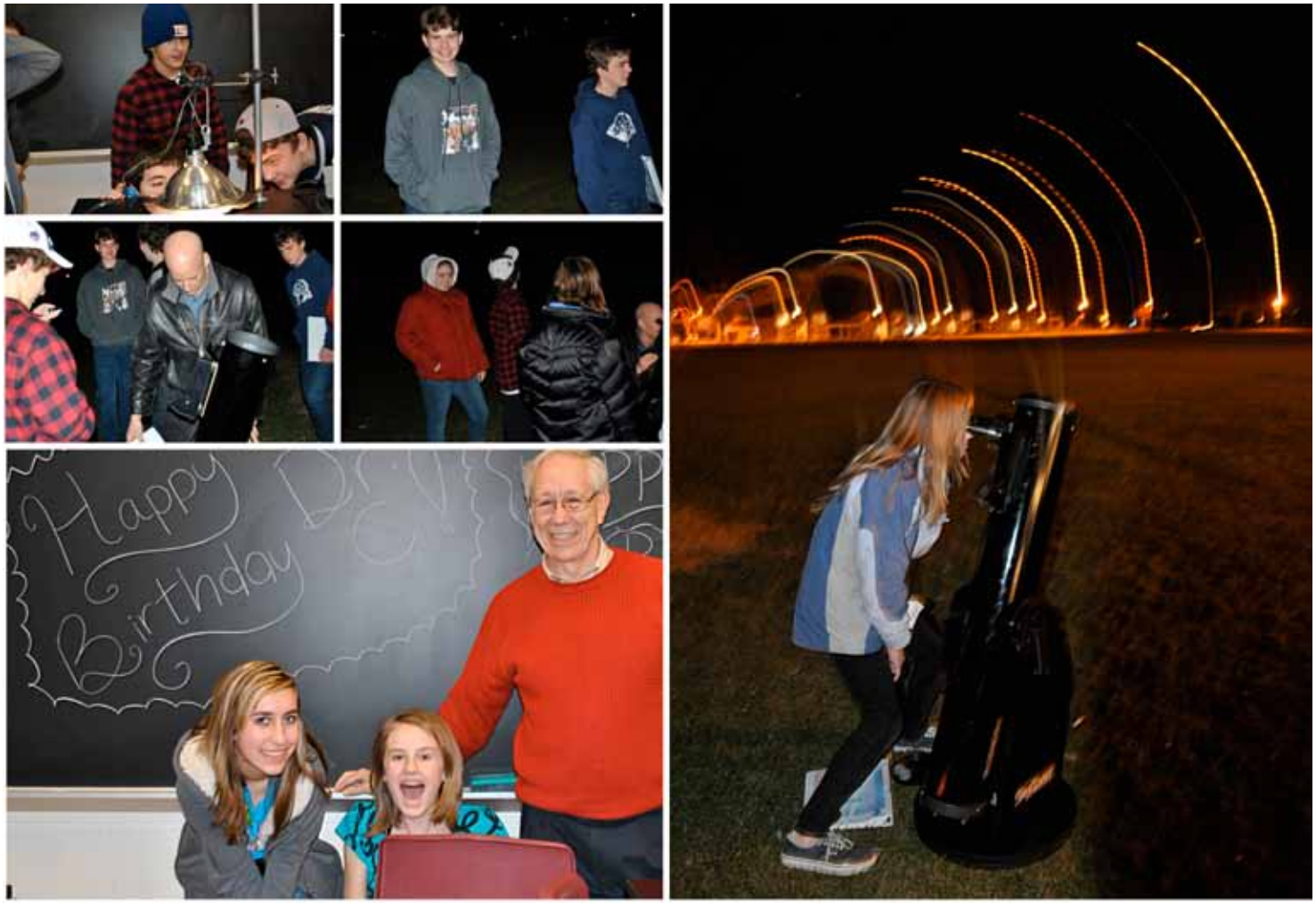
We were excited to get outside and play with the telescopes!

Cartesian divers were constructed as a way to simulate exploring an alien ocean, such as the one thought to exist on Europa, a moon of Jupiter.

Calibrating the telescopes was hard! We also took advantage of poorly secured lab equipment to investigate electricity, one of the fundamental forces in the universe.

A variety of waves were constructed and studied.

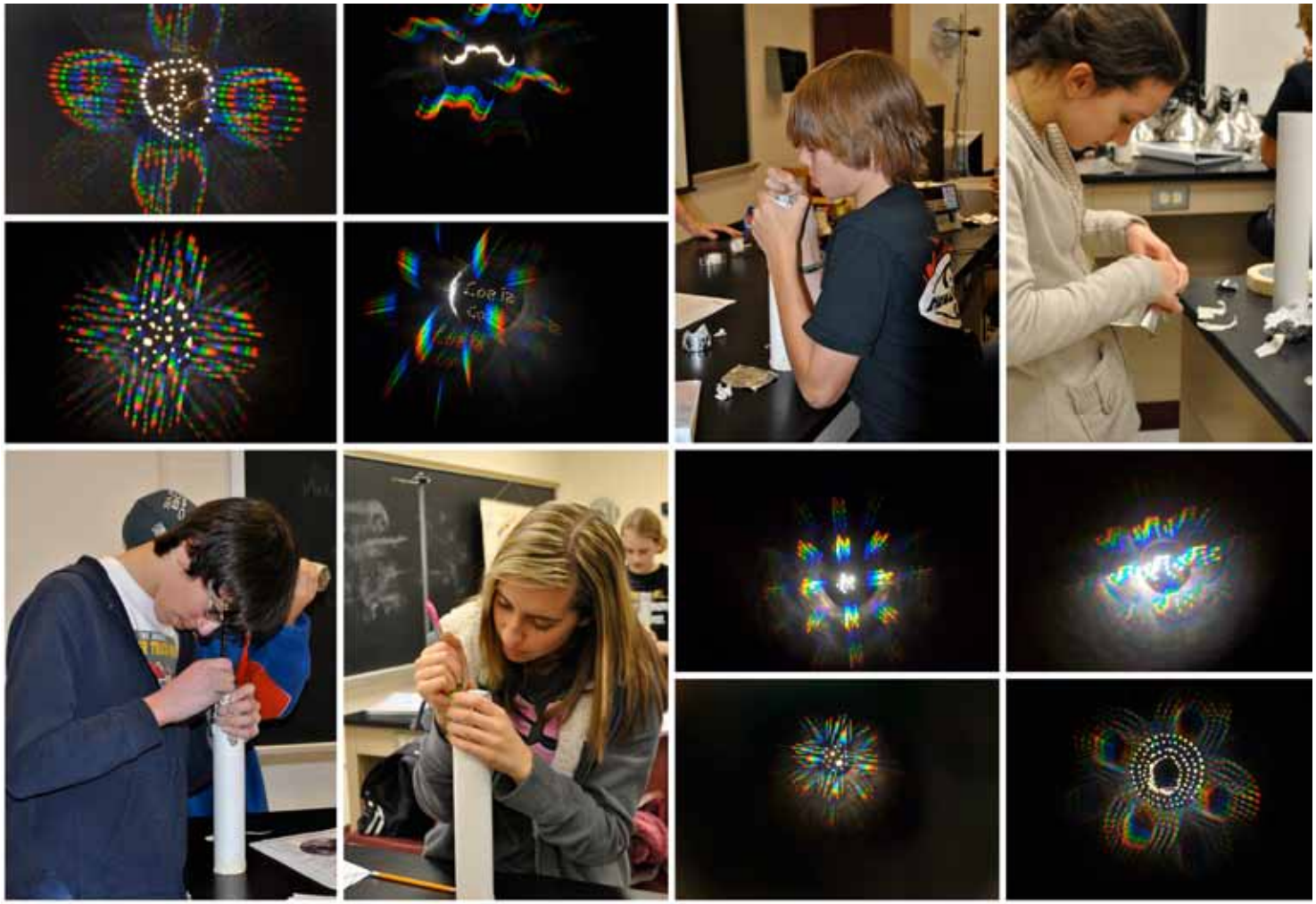
We used helium to vary the sound waves made by our vocal cords, to hilarious effect.



Telescopes provided a magnificent show - Jupiter, Venus and the Orion Nebula were all observed.

We used simple techniques to measure the height of mountains on the moon, repeating Galileo's work of centuries ago.

Star maps were constructed. We also used computer simulations to practice landing on the moon (and killing many simulated astronauts in the process!) We also used spectroscopes to investigate light.



We were able to create artistic patterns of light by using diffraction grating to split light into many different colors.

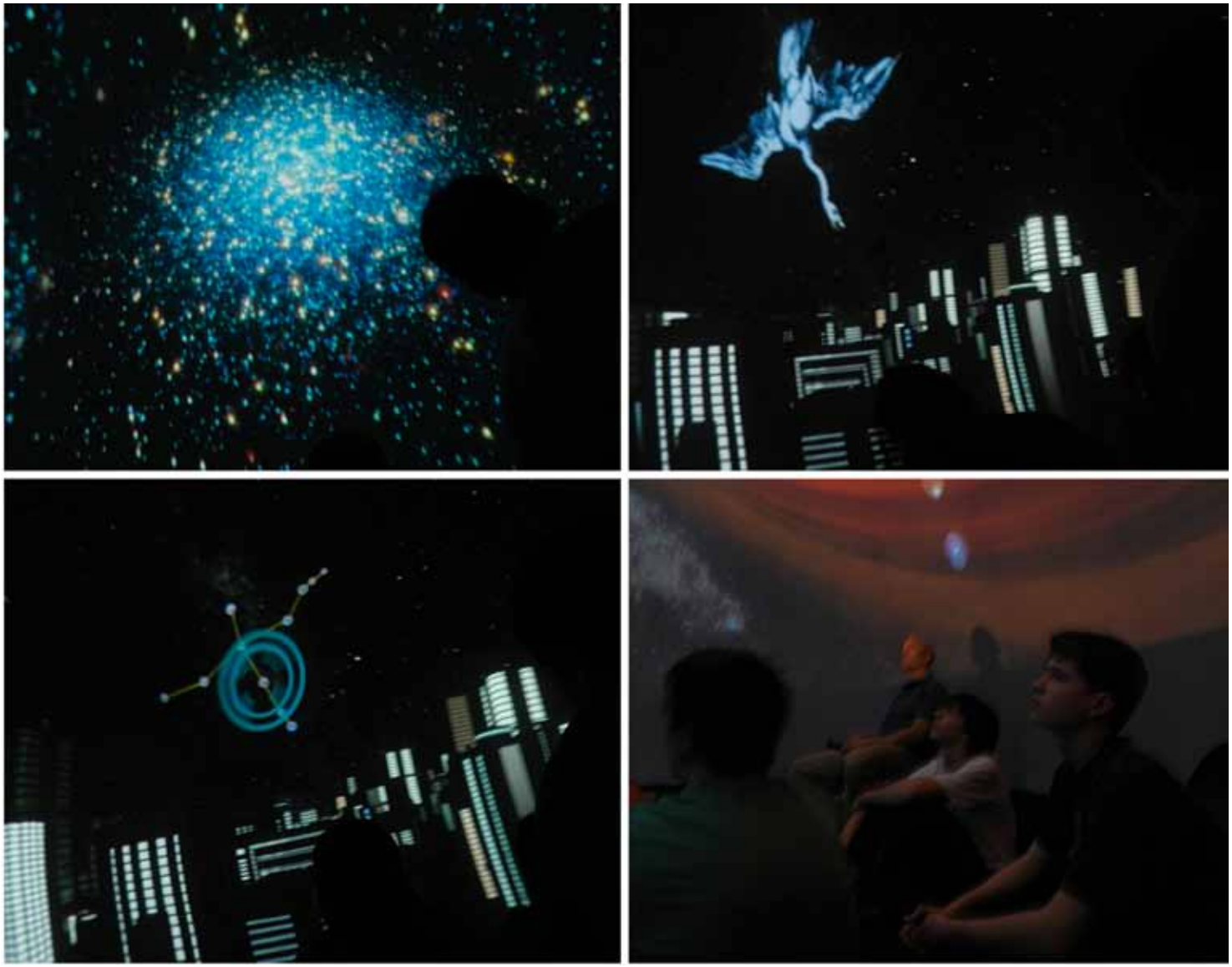
Astronomers use spectroscopes to identify elements in stars millions of light years away.

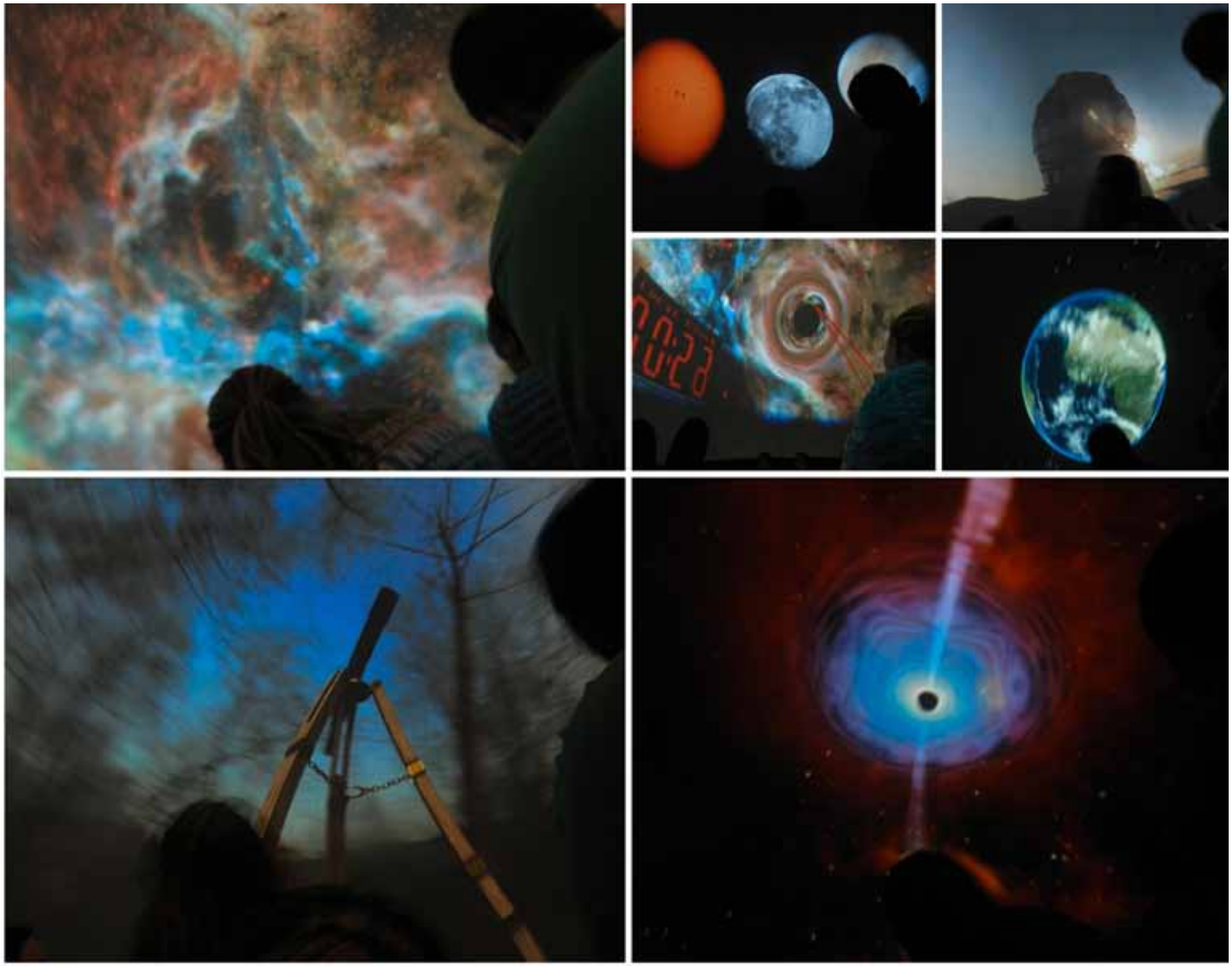
Mirrors were used to investigate reflections. And to show us how fabulous we looked. We also investigated how different colors respond to light, explaining why darker worlds tend to be warmer than bright ones.

It was determined that simple mathematical laws underline much of the phenomena in nature.

Enthusiam for scientifc discovery ran high, even after a full day of school.

Marshmallows stood in for astronauts re-entering the Earth's atmosphere. We also developed slingshot skills to make Tom Sawyer jealous as impact events were simulated.





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The Stars Challenge at Monmouth University