



Explore the Universe

The Stars Challenge at Monmouth University 2011

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. Some of us mastered the skills required to operate a telescope, and all of us were rewarded with views of the Moon, Jupiter and the Orion Nebula that took our breath away.

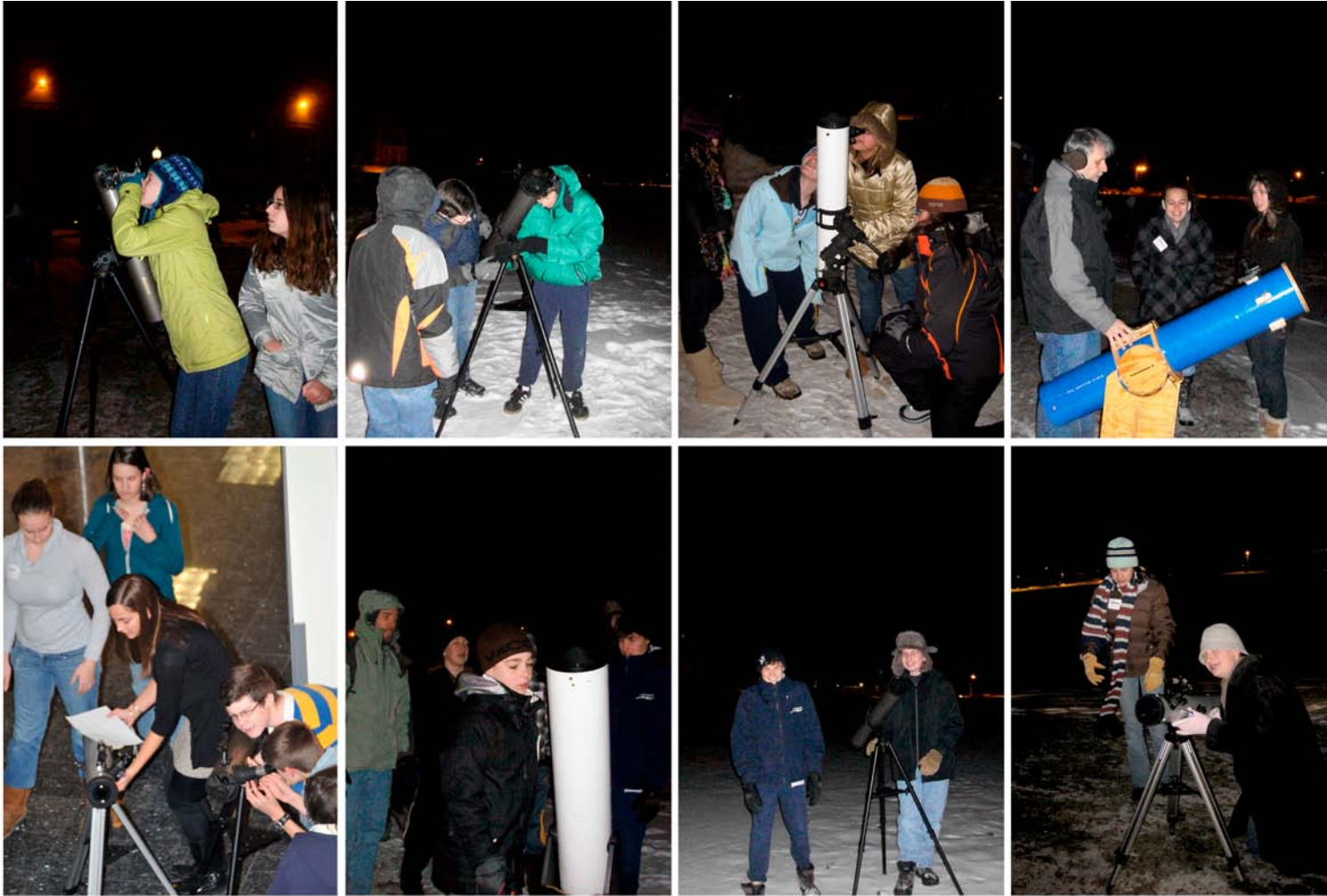
Waves and light were investigated. An understanding of both is required to further our understanding of the Cosmos. We saw how cosmic collisions, when objects from space hit the Earth with devastating consequences, influenced our past and will impact our future. Finally, we constructed rockets, the only vehicle we have (so far) that enable us to leave the Earth. Of course, we had to solve problems of symmetry and balance to get our rockets to travel at all,

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 were excited to get outside and play with the telescopes!



Calibrating the telescopes was hard!



A variety of waves were constructed and studied.



By varying the level of water in wine glasses, we were able to vary the pitch of the sound waves and make music.



We studied how colors effect heat absorption. Dark colors melt faster, which may help explain why darker worlds are hotter than lighter ones.



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

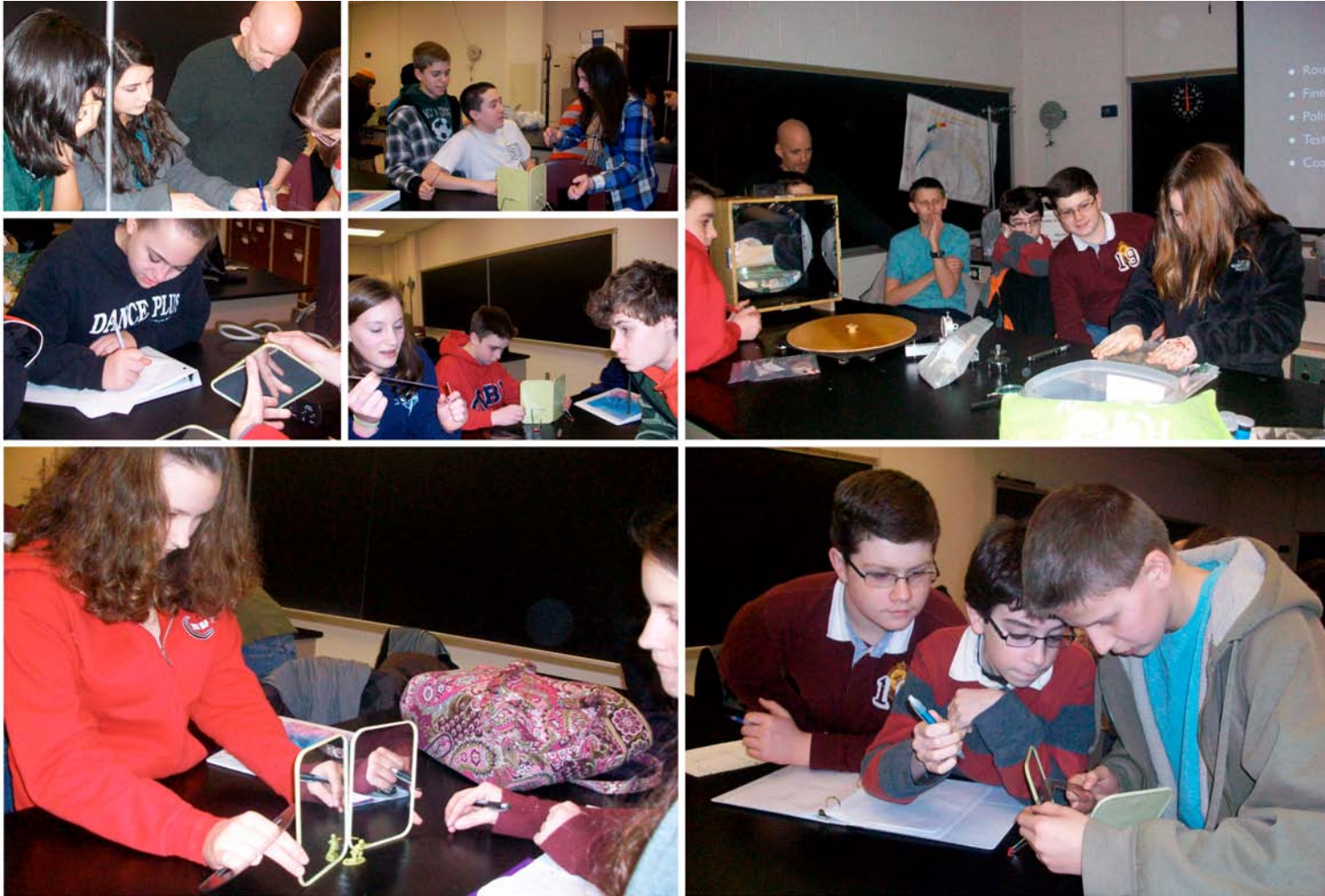


The Space Shuttles are making their last flights. Discussion became heated as we tried to divine the future of America's human space program.





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



Mirrors were used to study the properties of light. Also to see how fabulous we looked.



Mirrors were ground under the watchful eye of Mr. Lindner.



We used spectroscopes to investigate light. Astronomers use similar tools to identify elements in stars millions of light years away.



Even after a full day at school, energy levels were high as we worked through the many hands on investigations.



With simple materials we captured light!



On our Saturday session we made Cartesian Divers to investigate alien oceans. We also developed slingshot skills to make Tom Sawyer jealous as impact events were simulated.



Re-entry of a spacecraft through the Earth's atmosphere was simulated using a Bunsen Burner, with marshmallows standing in for astronauts.



The four hours went by in a flash. We left with a wider appreciation of the power of science to help us understand many astronomical phenomena.



Who says science can't make you look great?





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