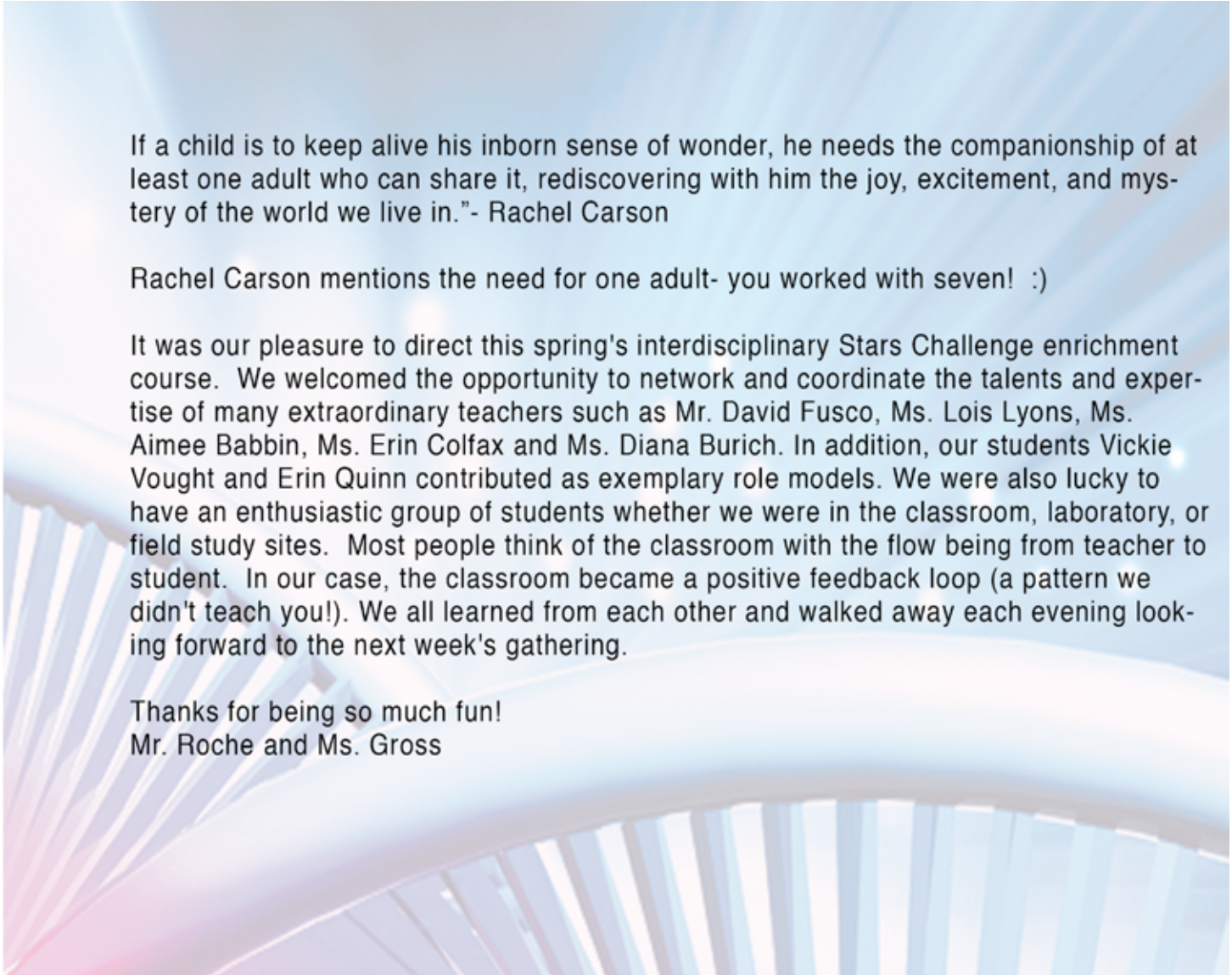




the stars  
challenge

**Patterns in Nature**  
Winter 2018



The background of the slide features a soft-focus image of a hand holding a pen, poised to write on a notepad. The lighting is warm and directional, creating a sense of depth and focus on the writing process. The colors are muted, with a mix of light blues, greys, and warm tones from the lighting.

If a child is to keep alive his inborn sense of wonder, he needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement, and mystery of the world we live in."- Rachel Carson

Rachel Carson mentions the need for one adult- you worked with seven! :)

It was our pleasure to direct this spring's interdisciplinary Stars Challenge enrichment course. We welcomed the opportunity to network and coordinate the talents and expertise of many extraordinary teachers such as Mr. David Fusco, Ms. Lois Lyons, Ms. Aimee Babbitt, Ms. Erin Colfax and Ms. Diana Burich. In addition, our students Vickie Vought and Erin Quinn contributed as exemplary role models. We were also lucky to have an enthusiastic group of students whether we were in the classroom, laboratory, or field study sites. Most people think of the classroom with the flow being from teacher to student. In our case, the classroom became a positive feedback loop (a pattern we didn't teach you!). We all learned from each other and walked away each evening looking forward to the next week's gathering.

Thanks for being so much fun!  
Mr. Roche and Ms. Gross



The introductory lesson on natural selection challenged "organisms" to compete for prey, as well as having students manipulate computer models to balance populations in simple ecosystems.





Deoxyribonucleic acid may seem complicated on its own, but with candy models even complex polymer chemistry concepts are easier to digest!



What's even better than eating fruit? Extracting the DNA within! Mr. Fusco helped us to extract nucleic acids from strawberries and bananas. We made a bit of a mess, but had a ton of fun!



So much (surface) tension! (Who was more worried- Vickie or Ms. Lyons?)



Polar vs. non-polar substances. From shaving cream tie dye to whole milk and food dye creations, we learned about the properties of water while demonstrating our artistic sides.





Taking the path less traveled to finding their inner Frost, students realized that the patterns involved with language and poetry are less daunting than they thought.



Communicating science is another way of demonstrating mastery of concepts.



Studying patterns in waves became so much more appealing when Ms. Babbin brought out the giant Slinkys.



We were intrigued by the science behind what happens when we blow into a saxophone, pluck a string on a guitar, or gaze at light sources through a diffraction grating.



Foldscopes from Stanford...



...an origami-based magnifying device that actually works!



Ms. Burich brought along both vertebrate and invertebrate "friends" from the Sandy Hook marine environment.



Our first-ever night hike in the PIN course followed by a challenge to mimic firefly mating signals using coding and Arduinos.





Our Brookdale / HTHS campus provided a perfect setting for our final session that challenged powers of observation, logic, cooperation, spatial awareness...



... calculation, creativity, perception and interpretation.



