

STUDENTS OF THE STARS

By Jason Schmit

Shortly after I started working at Twentynine Palms Junior High School (TPJHS), I realized what a shame it was for our site to not have more opportunities for astronomical viewing for our students. Our kids were living in one of the best places in the U.S. for observing the stars and we weren't taking advantage of our wonderful night sky. It took some time, but I eventually got the ball rolling by first supervising field trips into Joshua Tree National Park (JTNP). We would leave in the afternoon to get in a hike trails and perform various activities in the Hidden Valley area. As the sun set, the class would then be able to observe the stars, constellations, and planets. Occasionally, we would be able to meet up with amateur astronomers from the Andromeda Society so students would get to look at objects in the various telescopes. They were always amazed by the enhanced view from above. While the students interacted with the astronomers operating the telescopes, I saw another learning opportunity.

To instruct students how to operate a telescope and interpret the night sky for the general public would not only provide engaging lessons in astronomy and science, but also provide opportunities for positive interactions with people, learn leadership skills, and perform service for the community. Four years ago, I was able to secure funds to purchase some telescopes and begin a short, week-long program teaching students about astronomy and how to use a telescope. We met in the evenings, in my classroom at TPJHS, for some initial instruction. Then as it got dark, the class would step outside and get first-hand experience in the operation of a telescope. After a few years of doing this, I would hopefully be able to recruit a few docents, who would then assist in helping others in the community view the night sky.

After the initial trial of the described astronomy program, Administrators for Morongo Unified School District (MUSD) liked the idea. Led primarily by Deb Turner, and with help from the Department of Defense and Copper Mountain College, an expansion of that original program was created. Called Kaleidoscope Days, qualified students spend two weeks not only learning about astronomy, but also take part in other classes. Other instructors from MUSD have assisted in teaching art and anatomy; economics and oceanography had also been taught in the past. During the last two summers, rangers from JTNP have provided pupils an occasion to learn more about desert ecology; participants have even helped in designing a new trail in the park. Kaleidoscope Days allowed me to expand the astronomy program from a few students at TPJHS, to kids throughout MUSD in grades 4 through 9.

With a greater diversity in age groups, I am able to scaffold the process of learning astronomy each summer. Fourth and fifth graders attending Kaleidoscope Days learn about the planets and our solar system. They keep journals, learn how to do meaningful research, and perform various mathematical operations in order to discover how big the universe really is. Students in sixth and seventh grades discover the field of astrobiology. In accordance with state standards, these kids apply concepts in the geosciences and biology to create ecosystems on other bodies in our solar system. In the past, they have also designed ways for astronauts to colonize places like Mars or Titan, Saturn's largest moon. In grades 8 and 9, students "focus" primarily on stars and galaxies. They take this new information and couple it with what they learned in the previous years to gain a whole new perspective on what they see above them in the night sky. In doing so, the class begins to learn and practice using a reflecting telescope. At the Sky's the Limit Campus in

Twenty-nine Palms participants receive an orientation on how to use a telescope. Afterward, they are instructed on how to find, view, and compare various stars, planets, and other objects in the night sky.

On the fourth night, all of the students taking part in Kaleidoscope Days are invited to attend the "sky viewing party." With so many people at the Sky's the Limit site at once, numerous telescopes need to be set up. The 8th and 9th grade Kaleidoscope Days students act as interpreters at each telescope station. There, they aim the scope at various objects they practiced viewing earlier in the week. In addition, these young tour guides are able to answer many of the questions provided by the 75 to 100 visitors that night; students are taking ownership of their new found skills and knowledge and sharing it with the community. Having done this now for the past few years, a few of my students have begun to express interest in continuing to be docents and advocates for the night sky.

From elementary school, where star parties are occurring, through high school, offering electives in astronomy, the number of opportunities for MUSD students to observe the night sky has been growing over the years. In addition to programs offered by Sky's the Limit, Copper Mountain College, JTNP, and local astronomy groups, the fascination with our most accessible educational resource will certainly continue. As we go forward, I am hoping to recruit more young people to act as ambassadors to the night sky. Not only will they be able to share their knowledge of the stars, but will also gain a great deal of experience in leadership, interpersonal communication, and civic responsibility. With such a model, it is hoped young learners in our community can gain the tools necessary to reach any level of success, not just academically, but throughout life. The sky's the limit!