



The Lowell Observatory Navajo-Hopi Astronomy Outreach Program

History

Located in northern Arizona, adjacent to the Navajo and Hopi Nations, Lowell Observatory is optimally situated to share the excitement of astronomy with the Navajo and Hopi and contribute to enhancing education in their schools. So, in the summer of 1996 Drs. Amanda Bosh and Deidre Hunter, astronomers at Lowell, initiated an outreach program to bring the excitement of astronomy to Navajo and Hopi schools.

Now in our 18th year, we have worked with 75 teachers and their classes.

Goals

- To help teachers get Navajo and Hopi students excited about astronomy and science in general
- To help teachers of Navajo and Hopi students learn about astronomy and astronomy activities that they can use in their classrooms

Focus

Our program focuses on 5th through 8th grade students. We have chosen this narrow age range in order to reach students at the transition period between the inherent curiosity about the world of young children and the fixed negative attitude towards science often seen in high school students. In addition, it is easier for us to learn to present ideas and work with the students on activities in an age-appropriate manner.

Funding

We seek funding on a year-by-year basis. Over the years we have received funding from NASA E/PO, Allied Signal, BF Foundation, Phoenix Sun Charities, Soroptimist International of Flagstaff, Alcoa, Honeywell, Phelps Dodge Fund, O. P. and W. E. Edwards Foundation, America West Airlines, Flagstaff Community Foundation, Forest Highlands Foundation, Bank of America Foundation, Tuba City Regional Community Foundation, SPIE, US Airways Education Foundation, Wells Fargo Bank, ASML Foundation, NAU NASA Space Grant, Astronomical Society of the Pacific, Motorola Foundation, National Science Foundation (for teachers workshops), Arizona Public Service Foundation, and numerous private individuals.



Student picture of a scientist before our first class visit



Road to Naatsis'aan Community School



Making a model comet nucleus



Observing at the Lowell 1.8 m telescope



Materials provided to teachers at workshop



Teachers learn a moon phase activity



Students learn about Navajo astronomy

A star party



The Partnerships

Our program partners astronomers at Lowell Observatory in Flagstaff with teachers, one-on-one for the duration of the school year. We generally work with only one teacher at a given school and only for one year. The teacher is a full partner in the activities.

Hands on Astronomy

Classroom Visits We make classroom visits during which we do hands-on astronomy activities. At least 4 visits are expected, but more are encouraged depending on what the teacher wants and the astronomer's schedule. The teacher and astronomer jointly decide on the organization and selection of activities.

We provide the materials for the activities and leave these with the teacher. This includes introductory materials. In addition the teacher is provided with a copy of the activities book that we draw heavily on and copies of any activities taken from other sources.

Teacher Workshop Every few years we hold a 1.5-day teacher workshop at Lowell Observatory. Teachers that we are working with, have worked with in the past, or will be working with in the near future are invited and asked to bring another teacher from their school with them. We cover expenses.

Field Trip to Lowell The class spends the afternoon at the Lowell Steele Visitor Center and the first part of the night observing at the research telescopes on Anderson Mesa, outside of Flagstaff. We pay the cost of lodging and meals in Flagstaff; the school provides transportation.

Star Parties We like to hold at least one nighttime star party during the year. We have a portable telescope that can be used for viewing.

Traditional Knowledge When we can, we bring in the students' culture's traditional astronomical knowledge through collaborations with tribal educators versed in traditional knowledge.

Other Teachers Since we only work with one teacher at a given school, we ask the teacher that we are working with to act as a resource to other teachers at that school and arrange a means to share the activities and materials with them.

Assessment We have engaged an educator from NAU to evaluate our program. We also ask teachers for suggestions on how to improve the program.