

Skyshow Summer Camps

Nick Lake, Sarah Smail, Mark Subbarao

Adler Planetarium

1300 S Lake Shore Drive

Chicago IL, 60605

nlake@adlerplanetarium.org

ssmail@adlerplanetarium.org

msubbarao@adlerplanetarium.org

Abstract: For the past three years, Adler Planetarium has run a week-long skyshow camp for 6th through 8th graders. This camp engages students in the entire process of creating and presenting their own planetarium shows. The campers arrive on Monday with no planetarium experience and on Friday are presenting 5-minute shows of their own creation for their friends and family in the dome. We believe our model is successful and easily adaptable for other institutions.

Motivation

Informal learning has been moving increasingly toward a model in which the guest is the doer, and the staff's role is to facilitate. This model can be difficult in a planetarium, which is naturally set up to have a staff presenter and guests listening and observing. In order to make Adler's theater spaces more open and interactive, Skyshow Camp was created.

The goals for the camp are:

1. All campers learn and do all aspects of the show building process (programming, writing, performing)
2. Campers get to interact with experts and get "behind the scenes" access
3. Each group creates a final product that is interesting, unique, and watchable

Implementation

Skyshow Camp is a week long camp, Monday to Friday, 9:00 am to 3:00 pm. There are sixteen middle school aged participants per session.

The schedule is ambitious. The participants enter the week never having used The Worldwide Telescope, likely have never spoken publicly outside of their classroom, and vary widely in their interest in technology and/or astronomy. By Friday morning, they have become show creators.

To make it work, we've identified the critical factors that ensure that at the end of the week we have shows ready to go and participants who are confident and proud to share them.

On day one and throughout the week, the instructor is very clear about expectations and the timeline, allowing the participants to develop their goals and create show plans that are challenging but realistic. Participants are given as much autonomy as they are able to handle: firm deadlines are given and they work within them, deciding when they need a break and how to manage their time. Some groups need heavier intervention, some only need occasional checks to ensure they are on track.

This program exists within the umbrella of camps at Adler. As a result, participants are not reliably present, though attendance is higher for this program than for the less content-heavy sessions. Every participant learns and does every part of the process to ensure that if a group is missing a member, they aren't stalled. This also helps the participants develop a more well-rounded set of skills.

Group size is an important factor as well. With sixteen participants, four groups of four has been the most successful configuration, but groups as small as three and as large as five have been successful. Any smaller, and groups have difficulty completing their shows, and with any more than five, participants do not consistently feel like integral parts of the group.

It is important to note that the goal of the institution does not necessarily match the goal(s) of the participants. The participants primarily want to have fun during their summer break, and even the most high-interest participants are bound by their developmental stage and needs. Middle schoolers are not known for their ability to sit still and focus for long periods of time, so many break times are built into the schedule. There is a long lunch with time built in for active games or other activities and campers either visit an exhibit or see a show at least once a day. Scheduled and add-in fun activities occur daily, including telescope viewing, stomp rockets, or activities pulled from other camp programs. There are always books, fidgets, and a daily break activity that campers can self-select as needed.

At first, we underestimated the importance of testing on a dome. Young teens aren't abstract thinkers. Because they cannot envision the differences between viewing a show on a flat laptop screen and a dome, ample opportunity to gain concrete experience with presenting a dome show is required. It is often challenging to schedule time in the main theater, but if an institution has an inflatable dome or other minidome space, using it as often as possible is invaluable.

A solid, well-prepared staff is perhaps the biggest essential to a successful week. In addition to content experts, Adler utilizes an instructor, counselor, and teen volunteer. Present throughout the entire week, they keep the camp flowing, managing camper needs and assisting as needed in place of the experts. They see the big picture and ensure the groups are staying on track.

As one of the goals of this program was to give participants access to experts, we rely on Mark SubbaRao for WorldWide Telescope and show creation mentorship and on Nick Lake for scripting, presentation building, and performance skills. Additionally, members of Adler's Astronomy department visit to fact-check scripts and explain complex concepts. It is very possible to train non-expert staff to fill the content needs, but allowing the participants interaction with experts deepens their experiences and improves the final products.

Finally, a well-designed opportunity to share the shows improves the caregiver/parents' perception of the program. We introduce our team, recap the week, then let the campers take the lead. Their hard work shows clearly during their presentations.

The Worldwide Telescope

The Worldwide Telescope (www.worldwidetelescope.org)(WWT) is a powerful astronomical visualization environment. Originally developed by Microsoft Research, WWT is now an open source project which is managed by the American Astronomical Society. The software is used by everyone from astronomy researchers to teachers, students, and astronomy enthusiasts. WWT is also capable of running planetariums, and works in a variety of types of digital systems including multi channel systems, single fisheye projectors, and mirror dome systems. The Adler Planetarium has collaborated with the WWT team from the beginning. In 2013 the Adler produces 'Cosmic Wonder' the first full length planetarium show produced (and played back) entirely inside the WWT software.

Through its tour feature WWT provides an intuitive platform for narrative storytelling using astronomical data. Like other planetarium software packages WWT has a rich set of tools for show creation, including a full keyframe editor. However, excellent tours can be constructed with only the slide editor, making WWT significantly easier to learn than other of the standard programs currently used in planetariums. We have been able to get the 5th and 6th grade students producing content after only one hour of instruction. As an example of how easy it is to create a tour, WWT initially shipped with a tour created by a six year old (https://www.ted.com/talks/roy_gould_and_curtis_wong_preview_the_worldwide_telescope).

The WWT software runs both as a native Windows program and as a web application. Recent development has enabled near feature parity between the two clients, including tour creation functionality. While we have installed the WWT application on laptops running Windows, this program could just as easily be done in a web browser, without any software install. This also enables the students to take home a copy of what they created, something that would not be possible if we had used propriety planetarium software.

Prepping for Presentation

Due to the short timeline of the week, getting the presentations prepared by Friday morning is quite an undertaking. The schedule keeps moving, and while one aspect of the show might not be *quite* what a group wanted to achieve, there are more tasks at hand. Oftentimes there is a difference in emphasis between what the campers think is important and what is dictated by the schedule constraints. The camper in question might be interested in finding as many objects to talk about as possible or finding a “cooler” image of a deep sky object, whereas the task at hand is polishing the script and working on having something to say about the objects on the dome. One needs to be careful to not just tell them to stop what they are doing, but recognizing they may be trying to gain confidence in their presentation in another way and are seeing shortcomings they are trying to correct.

Setting realistic expectations for what the shows will look like and praising progress throughout the week are two important focus points. Friday morning is full enough of nerves and jitters about public speaking that having a solid show they are comfortable with is far better than having a perfect show they haven’t had a chance to practice.

Starting Wednesday we lead the campers in a series of public speaking improv games designed to get them out of their comfort zones a bit and to start thinking about how they are presenting themselves. One that is particularly effective is drawing a series of index cards, each with a random noun on it. They then must tell a story that includes each of the words but also maintains a coherent, concise storyline. These exercises allow campers to stand in front of their peers, practice enunciation and projection, get a little goofy, and make mistakes in front of each other. It also allows them to get a bit lost in the subject matter and stop thinking about the fact they are doing public speaking. As they are deep in script-writing at this point there is some carryover regarding coherent storytelling and giving meaningful background on a subject.

The students are given two chances to practice their shows in the Grainger on Wednesday and Thursday mornings and the lessons learned and confidence gained between these two opportunities and the final presentation are amazing. The students aren’t afraid to share their feedback on each others shows (it is important to encourage constructive feedback and positive comments) and the list of fixes and changes helps launch them into a session of productive work immediately following the practice session.

Conclusion

The major challenge of this camp is the tight schedule, which keeps the campers motivated but also prevents them from spending even more time on the project and delivering a more polished show. We have considered making it a two-week camp, which would help immensely but also increase staffing time and cost. Participants have also voiced that a two-week program would be hard to fit into their overbooked summer schedules.

There is heavy non-profit and for-profit competition in Chicago. To find Adler camps' place within that market, we focus on experiences that can't be found anywhere else in the city, which is how and why Skyshow Camp was created. It is likely that a similar program would be unique within your community as well.

We are aware of similar programs at other institutions, most notably American Museum of Natural History, Grand Rapids Public Museum, and Morehead Planetarium.

Overall, we believe this is a successful program and scalable for other institutions. The power of controlling the planetarium is exciting for the campers and their enthusiasm for the task is infectious. This program allows the campers to immerse themselves in a wide variety of topics over the week, including astronomy, mythology, physics, programming, public speaking, storytelling, improvisation, teamwork. The campers are inspired and engaged throughout the week, and are able to show off their hard work to their friends and family.