

Red Hat High: Using Open Source Software in a Technology Camp

Jason van Gumster, Hand Turkey Studios

1. Introduction

In the summer of 2006, 52 rising 8th and 9th-grade students attended a week-long residential technology camp at North Carolina State University. Named for the program's initiator, Red Hat High's mission was to expose students to technology and software that they otherwise might not be aware of. Using open source software, students were introduced to audio creation, video creation, 3D modeling & animation, and web design. And because it was done with freely available open source applications, students could continue working and learning after the camp was over; even sharing their tools and projects with their peers at home.

2. Background

The goal of Red Hat High is to get students, especially from under-represented groups like women and minorities, interested in science and technology at an early age. The camp is free of cost to students, who are nominated by their educators or other adult mentors. The various tracks in the program incorporate the use of open source software and a collaborative philosophy. Instruction was provided predominantly by Red Hat employees, although some tracks – notably the 3D modeling and animation track – utilized volunteers from the open source community to guide the students.

The four tracks – audio, video, 3D, and web design – used a variety of open source software, including, but not limited to, Audacity (audio), Hydrogen (audio), Kino (video), Cinelerra (video), Blender (3D), WordPress (web), and the Fedora Linux distribution. Students had instructional and work time in NCSU computer labs for three hours each day.

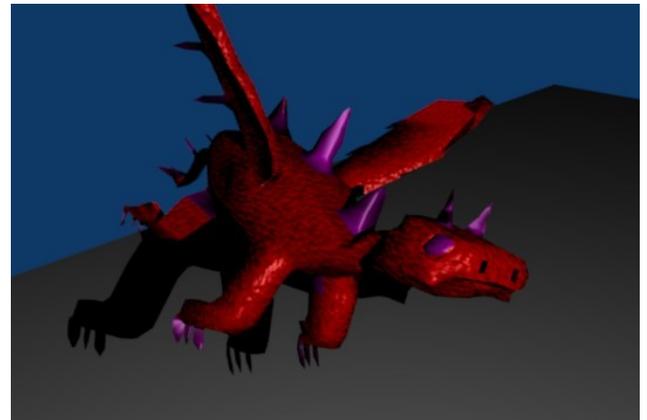
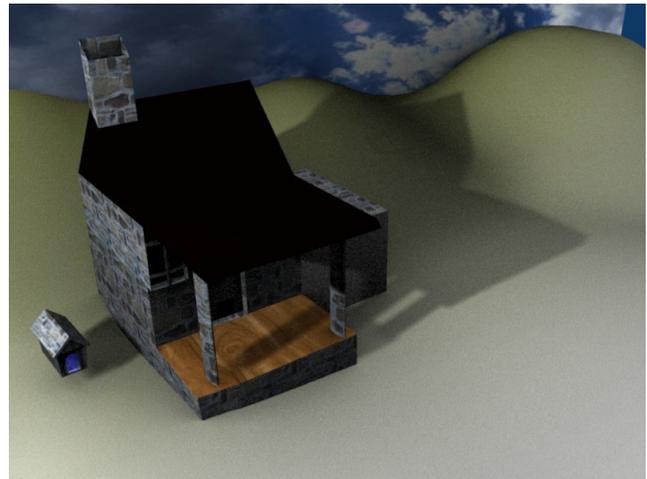
3. Challenges

The challenges in teaching at a camp such as this are varied. The nominated students are undeniably bright and adept at learning new things. However, a mere three hours a day for a week is not a long amount of time to become acclimated to a complex tool like a video editor or 3D suite and create a project in it. A fair amount of planning and preparation, as well as developing contingencies for unforeseen issues, was necessary. Fortunately, both the students and the staff were able to rise to the challenge and even exceed expectations.

This was particularly true in the 3D modeling and animation track. The first two days of the camp, students were introduced to the concepts of working in 3D space, the process and workflow of creating 3D art, and they were acquainted with the interface of that track's tool of choice, Blender. From that point, the students were told to develop a project of their own, based on the knowledge they had acquired in the last two days. The last three days of the class were devoted to bringing those projects to life.

The expectation was that the students would create a single render completed 3D scene with models, textures, and light placement. Not only did the entire class meet that expectation (with incredible results in some cases), over half of the class went further and created animations as well! Some even made use of complex concepts like armature animation and particle effects. And they did this despite limited lab times and even the loss of half a day's work from a university-wide power failure.

Similarly notable accomplishments were seen across the board in



the other tracks as well.

4. Future

The 2006 camp was the pilot year and all indications point to a great success. At the time of this writing, the 2007 camp is in its planning stages and there will undoubtedly be further accomplishments to note when this is presented. Future expansion plans for Red Hat High include continuing to hold camps in Raleigh in the coming years and even initiating similar programs in China, India, Brazil, and Eastern Europe. Also, depending on feedback from students, parents, and camp staff, there is the possibility of extending the duration of the camp to allow for more complex projects and collaboration between tracks, as well as adding to the number and types of tracks offered.