

Philomath high school students design award-winning video game “Incendia”

PHRED, the Philomath high school video-game design team, is the current champion in a growing high tech “sport”

Playing video games in their free time just isn’t enough for this teen crew: they want to design their own. Not only that, they want to create the best game they can, and compete against others who are doing the same. In 2011, about 40 high school and middle school teams, including about 140 programming and technology acers from across the state, competed in Oregon’s fourth annual “athletic” intellectual competition of video-game design.

Team PHRED, which stands for Philomath High School Robotics Engineering Division, not only won the open division championship in 2011, but now has a total of four [Oregon Game Project Challenge \(OGPC\)](#) wins to boast about , and they are becoming known across the state as the team to beat. Philomath High is in a small rural town, located just outside the college town of Corvallis. These high school students certainly live up to the town’s name, which is derived from a Greek word meaning “lover of learning,” and which got its name from a Philomath college that used to exist there.

The OGPC sponsored through TechStart Education Foundation, challenges Oregon young people to flex their computer programming and technical muscles using game-making software in a video game competition that also values teamwork, presentation abilities, and—more than anything—fun. TechStart defines a theme for each year’s video game challenge, with this year’s being ‘disaster recovery.’ Every game has a mandatory educational component.

Team PHRED’s four students on the OGPC team—Ben McMorrان, Tyler Thrall , Stefan Faridani, and Paul Atkinson—wowed the judges last spring with their custom-designed game, named “Incendia,” in which players are firefighters who must attempt to stop a fire while rescuing victims trapped inside. Their goal was simple, as teammate Tyler Thrall says: “I really wanted to make a game that’s really fun to play.” Not only did they achieve serious fun, they also created technically savvy special features like different levels of play, included an educational tool for spreading awareness of firefighting search and rescue techniques, demonstrated their research and teamwork skills, connected with people with similar interests, and last but not least, came home with a trophy.



After the theme was announced, PHRED’s team worked for about a month designing their game, meeting in person weekly, talking out ideas through online forums, and collaboratively writing a design document on a team wiki. They learned how to apply game design software like Microsoft Visual Studio, and also used basic algebra, geometry, and an understanding of velocity and basic physics to make their simulations seem realistic, for example, by making particles that represent explosions fade out more like they would in an actual situation. OGPC team member Ben McMorrان says, “We created most of the sound effects. The fire you hear is crumpled paper and we used a program called Audacity to filter it to a higher pitch to sound more realistic.”

Incendia is certainly an exciting virtual world, but these young engineers are not only creating worlds on the screen—they’re also creating and expanding their own. For Stefan, being among over a hundred people with similar interests at the OGPC tournament was stimulating and new. The tournament offered

a window into a larger computer science community: science and technology judges, speakers, teachers, volunteers, and rival teams. Many students who participate in technology-related extracurricular activities decide to pursue their interests in college studies and careers, which continue to be promising fields. Oregon has a strong high-tech industry, often referred to as the “Silicon Forest,” and computer science expertise is now needed in many industries that were not previously known as high-tech. The Oregon Employment Department projects that Oregon will have a 7% growth in computer and software related employment through 2018, adding more than 7,600 jobs which pay average annual salaries greater than \$60,000.*

The four members of Phred’s OGPC team are a tight-knit and remarkably talented group, but what makes their story even more remarkable is that they are just a few of many Philomath High School students who are thriving in extra-curricular engineering and technology “sports.” With one of the oldest competitive tech teams in the state, Philomath High hosts multiple technology programs that have grown and cross-pollinated each other over the years and created a school culture that respects diverse interests and a thriving sub-culture of students empowered by their technology interests.

In addition to PHRED’s OGPC team, team PHRED includes a 24-member FIRST Robotics Competition Team (FRC), whose members program and compete a custom-made robot in local tournaments, educate younger students, perform community outreach, and run [PHRED’s website](#). The students came up with a “Caution--Robot Zone” theme for their visible presence on campus, with themed t-shirts, custom caution tape, and a real branding strategy. They show off their custom-programmed robots and games in classes, at school assemblies, and in their feeder middle school. In response to the dedication and time students were spending on robotics, the school started a high school robotics course which is now at capacity with 25 students and a 27-student waiting list. A number of students who enter these high school teams also participated in youth FIRST LEGO League tournaments in elementary and middle school. Student interest has proven to be the most effective way to foster other students interest. As FIRST coach Tom Thompson puts it, “PHRED is a brand.”

Resources for Oregon schools:

FUNDING: Schools leaders interested in applying for an ETIC eChamp grant in 2011 to start or support an extracurricular team can find out more information by contacting Ken Cone at the Oregon University System at Ken_Cone@ous.edu or by going to the ETIC website at www.oregonetic.org/grant-info/

STARTING A TEAM: Schools leaders interested in starting a team through robotic tournaments and programs in Oregon should see the Oregon Robotics and Tournament Outreach Program, ORTOP at www.ortop.org. Administered by the Oregon University System, ORTOP implements the Jr. FIRST LEGO League, FIRST LEGO League and FIRST Tech Challenge programs for students in kindergarten through high school. All three programs are based on national and international programs offered by FIRST. Information on FIRST Robotics Competition can be found at www.oregonfirst.org. Leaders interested in the video game design teams should see Oregon Game Project Challenge, techstart.org/oqpc offered through the TechStart Education Foundation.

But it’s certainly not students alone. The OGPC team and Team PHRED as a whole rely upon many hours of time devoted by the team coach and former teacher Tom Thompson, robotics lead mentor Terry Heath, and a number of adult mentors, many of whom are practicing or retired engineers. It also relies on partnerships with companies like Hewlett Packard, grant-giving organizations like the Oregon Community Foundation and the [Engineering and Technology Industry Council \(ETIC\)](#) of the Oregon University System, parental and community support through fundraisers, and many more partners. Philomath joins a number of high schools across the state that are creatively supporting their extracurricular technology teams by offering stipends to teachers and coaches for their time in the same way they provide stipends to athletics coaches. This is becoming easier with a grant program offered through ETIC. Because of the great success these activities have in getting students interested in

technology-related careers, ETIC has a seed funding program called eCHAMP, which provides start-up funds to match school investments in such teams, covering equipment costs and stipends for coaches.

School leaders are noticing that investing in these extracurricular activities builds a community that lauds and cultivates academic success. Philomath principal Ken Ball says, “It’s a culture. That’s what’s important. Kids who band together will do things together—they have that unity. They find something in school that makes them successful. PHRED is one of those things.”

* Data from Industry Employment forecast, 2008-2018, www.qualityinfo.org (Oregon Employment Department website).

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