



A team of sophomores at Downers Grove North High School watch video footage from a weather balloon they sent into the stratosphere in February.

Photo provided

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**A** DOWNS GROVE team of Downers Grove North High School students is learning the trials and tribulations of being scientists thanks to an ambitious weather balloon project.

Sophomores Nick Arand, Zach Busch, John Cagney, Will Cerne, Jack Costello, Jake Drobnik, Kevin Griffin, Erik Goes, Nick Ghanayem and Matt Lee built and launched a weather balloon to record data and video footage from the stratosphere.

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# NEW HEIGHTS

## Downers Grove North students build, launch weather balloon



**A group of students from Downers Grove North High School prepare their weather balloon for launch Feb. 21 in Galesburg.**

Photo provided



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On March 12, the project received "Gold Distinction" from the Regional Illinois Junior Academy of Science competition, and the team now is preparing for the state competition in May.

The sophomores are members of the Science and Engineering Club at Downers Grove North High School.

"We started the year looking for a project to do that we thought would be interesting and would attract attention in the community," Drobnik said.

To learn how to make and launch a weather balloon, the students turned to Internet resources, including posting on forums where people gave them advice.

North science teachers Jeff Grant and Keith Dvorkin also provided guidance along the way.

Grant said he is impressed with the

students' initiative with the project.

"I think they epitomize what every science teacher would love to have, which is kids that are self-driven," he said.

The payload that the balloon carried was less than four pounds and was housed inside a Styrofoam container. The equipment included a Raspberry Pi computer to record data, a GoPro camera, a GPS and an auxiliary battery.

Leading up to the Feb. 21 launch, the students did research and conducted tests to try to avoid any mishaps during the flight.

They studied to estimate how far the balloon would travel and at what altitude it would burst. They chose to launch in Galesburg so the balloon would start and land in a remote area. They picked the launch date because lower winds would make the balloon's flight path more predictable.

Additionally, they put the equipment

in a freezer to simulate the temperature in the stratosphere and drove around with the GPS to make sure it worked.

Despite all the preparation, things did not go exactly as planned during the flight.

While they estimated the flight time would be 3 hours, 55 minutes, the actual flight took only 2 hours, 27 minutes. Making matters worse, a secondary camera attached to the computer did not work during the flight.

Most concerning to the students was that they lost the signal from the GPS unit for three days after the landing, which they believe was because of interference from the computer.

As a result, the payload was not located until blizzard-like conditions caused it to move, which allowed the GPS to again send a signal.

"The relief we felt when we found the balloon, I can't describe it," Costello said.

Grant said the project's miscalcula-

tions are a good lesson for the students if they want to be professional scientists.

"When a mistake happens, it gets costly," he said. "That's the real world."

The balloon reached 30 miles above sea level and landed 110 miles from the launch site.

The GoPro was able to record 17 minutes of near-space footage in the stratosphere. The students posted the video to YouTube, which has received more than 52,000 views.

The group plans to launch another balloon in early April and will use what it learned from the first launch to correct its mistakes.

"We need to test even more because we can't rely on luck every single time," Costello said.

Drobnik said the next balloon will include new features and will try to reach a higher altitude.

"We just want to top ourselves now," he said. "We don't want to stop."