Bridging College Students and K-12 Students Together Through High Altitude Ballooning

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Why Link HAB and STEM?

- Science
  - Experiments
- Technology
  - Tracking hardware/software
- Engineering
  - Design
  - Cohesiveness of components
- Mathematics
  - Calculations
Why Link College Students with K-12 Students?

- Teamwork
- Group leadership
- Role Models
IOWA STATE AND Ames School District

- Started with Michael Lazere and a grant from the Ames Education Foundation.
- Wanted students to see “Big Picture” ideas instead of details
  - As well as keep kids interested in Math and Science
- 3 Students as well as 1 Staff from Iowa State University volunteered to help student group
First Collaboration Flight

- Arduino board was used to collect data to be studied after flight
- 2 Cameras were within the payload as well
  - One looking out of the box
  - Once situated to watch experiment within the box
PHOTOS

- Short video on liquid experiment
Photos

- Pictures from L-126-A
PHOTOS

- A few glitches were found with the still camera
  - Was set to RAW mode, filled up the card too fast
    - Only a 4GB card used
  - Due to the high humidity that day the window frosted over

- One issue identified with the video
  - Once again, only a 4GB card was used
**DATA**

- Temperature, pressure and humidity were on board
Data

- Pressure was as expected, temp and humidity were not.
- A glitch was found in the code and it was not polling the right sensors for temp/humidity.
LESSONS LEARNED

- As this was the first flight for this group, a very steep learning curve was soon discovered.
- Project itself was mainly engineering project.
- Data gathering can be used as examples within the classroom.
- Students come up with experiments that the “HAB Club” could then launch.
Looking Ahead

- Hope students form “HAB Club”
  - Student run club that will be taught to new members through the experiences of older members
  - This club will be extra-curricular and allow both middle school and high school students to work together with college students