

The Wonders of Weightlessness

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- Part of NASA's "Reduced Gravity Student Flight Opportunities Program"
 - Programs for 4th grade through grad school
 - Not just physics
- Overview
 - Create and submit a proposal.
 - Medical exam - flyers.
 - Build and ship project.
 - Complete administrative paperwork.
 - Physiological training at JSC.
 - Fly.
 - Complete outreach and final report.



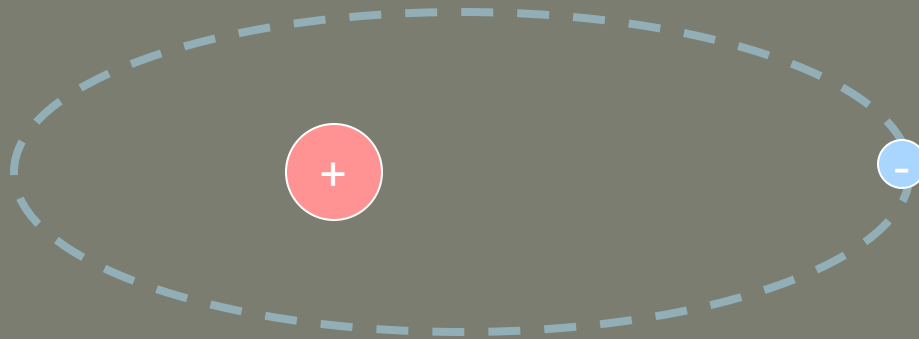
Timeline of our experiment

- **Sep. 2005:** received announcement
- **Oct.:** proposal due
- **Jan. 2006:** awards announced
- **Jan. – May:** Weekly team meetings and 2 DI's to design/prototype apparatus
- **May – Aug.:** Fabricate and test apparatus (4 interns)
- **Aug.:** Fly the experiment
- **Sep.-Nov.:** Final report and outreach



Our experiment

- The goal of our experiment was to orbit an electrically charged sphere around an oppositely charged sphere.
- This has never been done before.



Hyperbaric Chamber

- Students are considered “crew” not passengers
- Must know what to do if aircraft is suddenly depressurized at high altitude
- Simulated in hyperbaric chamber:



Video clip

- Hyperbaric chamber...

Test readiness review

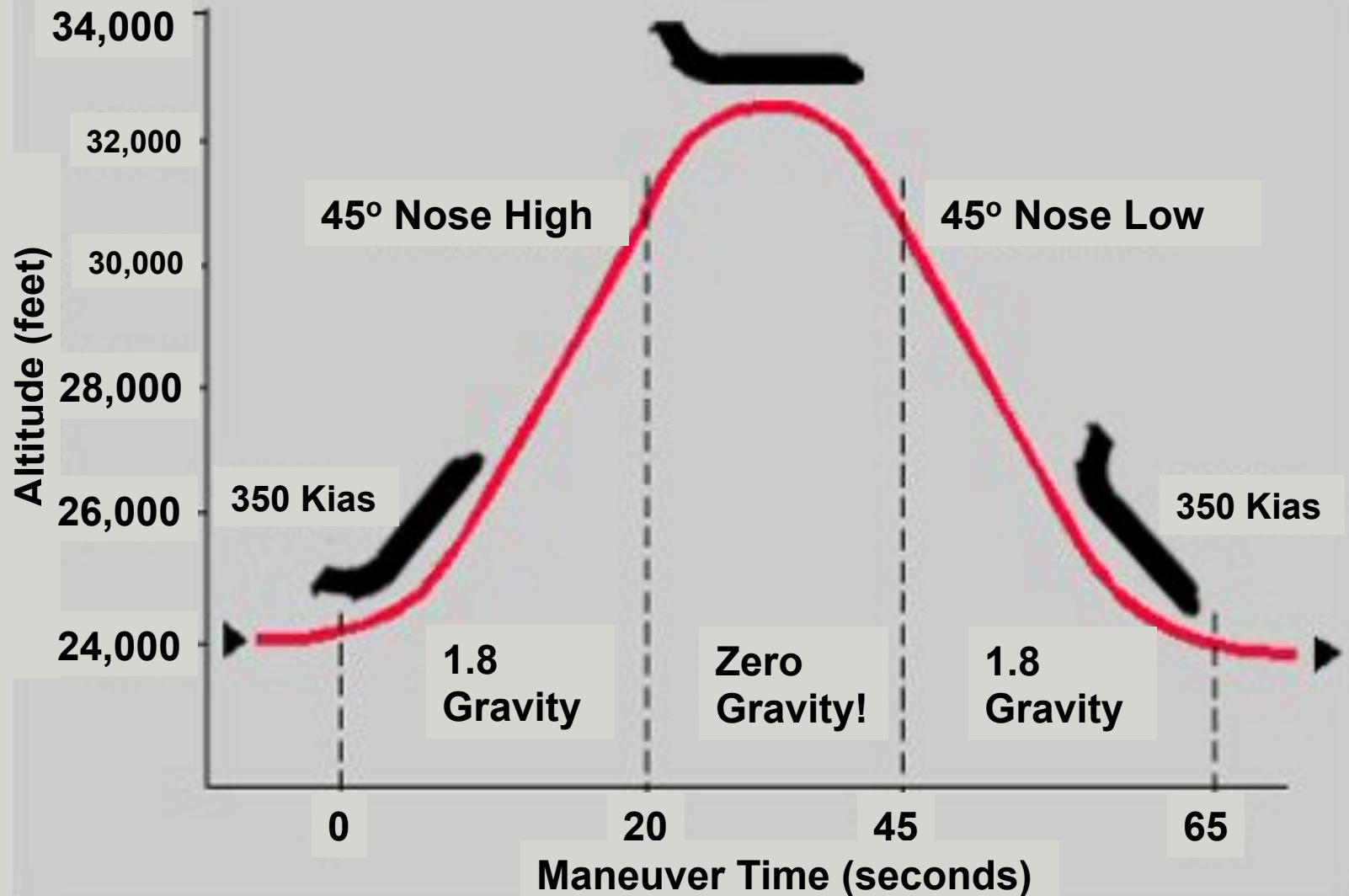
- All experiments must pass a tough NASA safety review.
- Several senior NASA personnel grill students on possible in-flight hazards of experiment



Video clip

- Test readiness review...

How NASA makes weightlessness



Video clip

- Parabolic flight trajectory...

Procedure demo



Video

- The experiment!