

# PHY 207

## Journey to the Edge of Space



*Klamath Falls, OR*

*Spring 2013*



## How will you get to the edge of space?

- Car?



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# How will you get to the edge of space?

## ■ Car?

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# How will you get to the edge of space?

## ■ Car?

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## How will *you* get to the edge of space?

- Car?
- Space Shuttle?



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## How will *you* get to the edge of space?

- Car?
- Space Shuttle?
- Turtle?





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## How will *you* get to the edge of space?

- Car?
- Space Shuttle?
- Turtle?



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## How will *you* get to the edge of space?

- High-altitude balloon!!!







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# How will you get to the edge of space?

- High-altitude balloon!!!

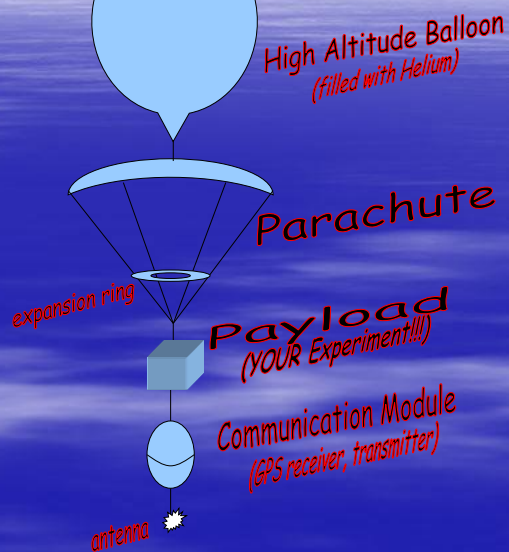


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Oregon Institute of Technology  
"MarsReach"





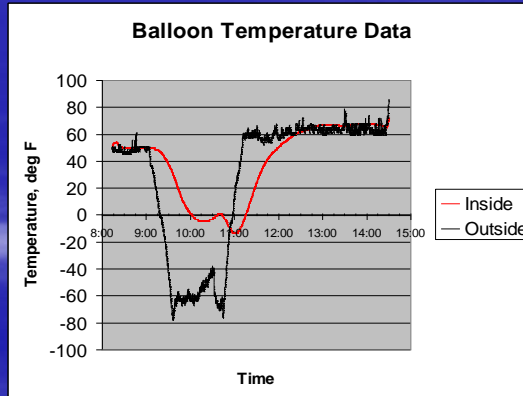
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# So...

- You think it's cold today???!!!
- What you can expect at the edge of space

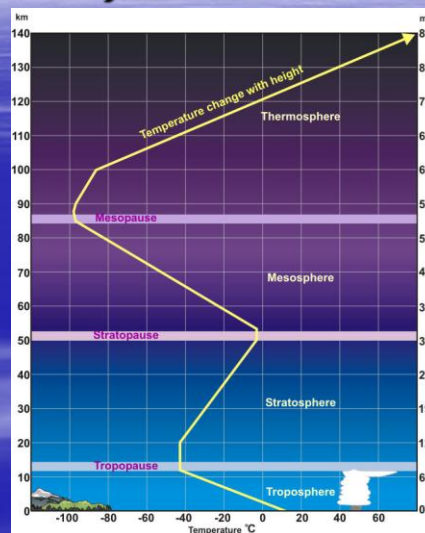


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## Layers of the Atmosphere



100,000 feet

80,000 feet

<http://www.srh.noaa.gov/jetstream/atmos/images/atmprofile.jpg>



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# "I can't breathe!"

- Is there air up there?
- Air pressure
  - On the coast - 14.7 pounds per square inch (PSI)
- What does this mean?



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# "I can't breathe!"

Take a long tube that is 1 inch on each side and fill it with all the air straight up

All of the air inside would weigh 14.7 pounds if you're at sea level



Earth



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## "I can't breathe!"

- Is there air up there?
- Air pressure
  - On the coast - 14.7 pounds per square inch (PSI)
  - On Mt. Shasta – 8.5 PSI
- Question 1) What would happen if I opened an empty bottle on Mt. Shasta, closed it, then brought it back down to OIT?



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## "I can't breathe!"

- Is there air up there?
- Air pressure
  - On the coast - 14.7 pounds per square inch (PSI)
  - At OIT – 12.5 PSI
  - On Mt. Shasta – 8.5 PSI
  - Outside a jet plane – 3.5 PSI



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## "I can't breathe!"





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## "I can't breathe!"

- Is there air up there?
- Air pressure
  - On the coast - 14.7 pounds per square inch (PSI)
  - At OIT – 12.5 PSI
  - On Mt. Shasta – 8.5 PSI
  - Outside a jet plane – 3.5 PSI
  - At 80,000 feet – Less than 0.5 PSI!!!



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## "I can't breathe!"





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# What's it like up there?

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Space Grant Consortium




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# What's it like up there?

- Question 2) What would I like to know about being at 80,000 feet?

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# Balloon Engineers!!!

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# Balloon Engineers!!!

- Your first mission

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