


Today's Class: Earth as a Planet

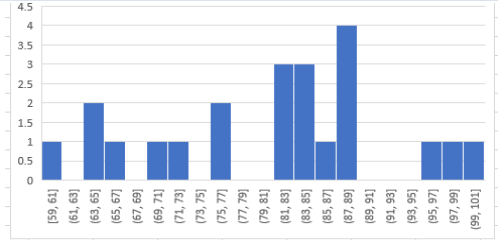
Exploring the Solar System Reading – Chapter 7 in Cosmic Perspective.



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Results for Exam 2



# points	100
Std Deviation	10.51
Mean	81.19
Median	84.00

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Space in the News

Presenter: Brandon Alvarez

Nuclear Thermal Propulsion (NTP)

- Delivered by Ultra Safe Nuclear Technologies
- Uses Uranium-based fuel particles

Pros

- Has twice the specific impulse of other chemical systems
- Less environmental impact

Cons

- Expensive to produce compared to chemical systems
- Comes with "nuclear" safety concerns

Do you believe that NTP will play a part in future space exploration? Why/why not?



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Reading Class Exercise: Where did Earth's (interior) heat come from?

- a) volcanoes
- b) accretion and differentiation as Earth formed
- c) radioactivity
- d) all of the above
- e) B and C

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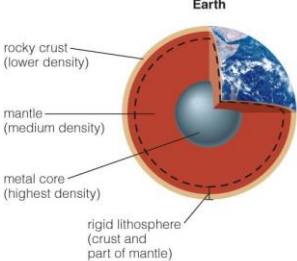
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Earth's Interior

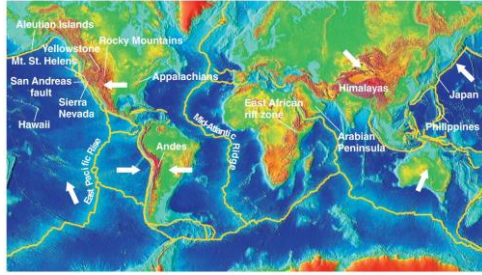


- **Core:** highest density; nickel and iron
- **Mantle:** moderate density; silicon, oxygen, etc.
- **Crust:** lowest density; granite, basalt, etc.

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How is Earth's surface shaped by plate tectonics?



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Continental Motion

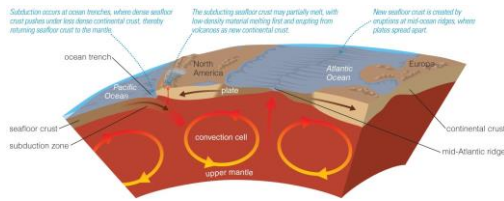


- The idea of continental drift was inspired by the puzzle-like fit of the continents.
- Mantle material erupts where the seafloor spreads.

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Seafloor Recycling



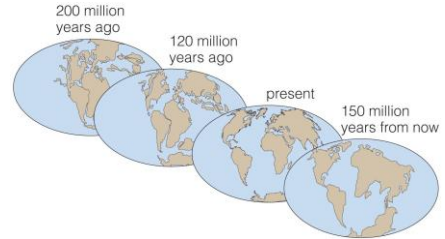
- Seafloor is recycled through a process known as subduction.

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Plate Motions

- Measurements of plate motions tell us past and future layout of the continents.



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Earth's Unique Atmosphere



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Earth's Water and CO₂



- Earth's temperature remained cool enough for liquid oceans to form.
- Oceans dissolve atmospheric CO₂, enabling carbon to be trapped in rocks.

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Nitrogen and Oxygen

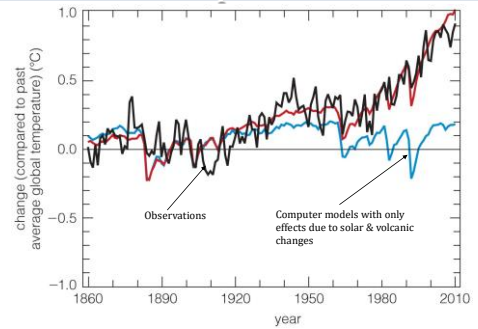


- Most of Earth's carbon and oxygen is in rocks, leaving a mostly nitrogen atmosphere.
- Plants release some oxygen from CO_2 into atmosphere.

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How is human activity changing our planet?



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