

PHYS 171: Planetary & Stellar Astronomy
Due: Friday, October 18, 2019

Problem Set #7

0. The Seasons (optional, not graded)

Explain why the northern hemisphere is cold in January and warm in July, while the southern hemisphere experiences the opposite temperature variation (warm in January and cold in July). Your explanation should include two diagrams (drawn by you) that explain this phenomenon based on the Earth's position and orientation relative to the Sun and how the light is incident on a portion of the Earth.

1. The Greenhouse effect

Explain the Greenhouse effect (you can use Earth or another planet as an example). Your explanation should include a diagram (drawn by you).

2. References

In preparation for your interlude I paper on "humanity in the Solar System", find two references that are relevant to your topic and write two summary sentences for each.

Format for references:

Authors, title of article (or book), publication (i.e. magazine, journal, or website for the article, or publisher for a book), pages/date, year. Web address.

Examples:

J. Pontin, "The genetics (and ethics) of making humans fit for Mars", *Wired*, August 7, 2018.
<https://www.wired.com/story/ideas-jason-pontin-genetic-engineering-for-mars/>

D. Leonard, "Red Planet versus Dead Planet: Scientists Debate Next Destination for Astronauts in Space". *Scientific American*, march 30, 2017. <https://www.scientificamerican.com/article/red-planet-versus-dead-planet-scientists-debate-next-destination-for-astronauts-in-space/>

"Asteroid mining", Wikipedia (English), accessed on October 10, 2019.
https://en.wikipedia.org/wiki/Asteroid_mining