HPS – Solar System Organization 2020 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Objective 3: Describe the structural organization of the solar system.

**A. Planet Characteristic Chart -** [Resource Link](https://solarsystem.nasa.gov/planets/overview/) **(allow Flash)**

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Size**Lg / Sm | **Density**High / Low | **Atmosphere**Thick / Thin | **Main Composition**Rock & Metal / Gas & Ice | **Gravity**High / Low | **Orbital Velocity**Slow / Fast | **Orbital Period**Long / Short |
| **Mercury** |  |  |  |  |  |  |  |
| **Venus** |  |  |  |  |  |  |  |
| **Earth** |  |  |  |  |  |  |  |
| **Mars** |  |  |  |  |  |  |  |
| **Jupiter** |  |  |  |  |  |  |  |
| **Saturn** |  |  |  |  |  |  |  |
| **Uranus** |  |  |  |  |  |  |  |
| **Neptune** |  |  |  |  |  |  |  |

**B. Solar System Scale –** Click the[Scale Link](https://www.nasa.gov/audience/foreducators/5-8/features/F_Solar_System_Scale.html)to compare the distances between planets to a football field. Then watch the [Solar System to Scale Clip](https://live.myvrspot.com/iframe?v=fMjdmMjMxMDNiMTM4ZTU5YmMwN2IwYzVhMjE1YTMxYjA) (7:21).

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| Write a few sentences reflecting on the sale of the solar system. |

**C. Solar System Formation**

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|  | **Notes and Sketches - Ch 29.4** [Link to Resource](http://www.windows2universe.org/our_solar_system/formation.html) |
| 1. Nebula Collapses |  |
| 2. Nebula Spins |  |
| 3. Sun Forms |  |
| 4. Planetesimals Form |  |
| 5. Planets Form |  |

**D. Temperature and Formation of Our Solar System**

Introduction:

During the formation of our Sun and the surrounding planets, there is a definite line at about 3 AU from our Sun (an AU – Astronomical Unit – is the average distance between Earth and Sun), when it was cold enough for hydrogen and helium gas to freeze into ice pellets. Closer to the Sun than this, hydrogen and helium stays in gaseous form whereas farther than this, hydrogen and helium freeze. This impacts what our planets are predominantly composed of.

Instructions:

Consider the information provided in the graph. It shows the temperature (expressed in Kelvin) at different distances from the Sun (expressed in astronomical units or AU) in the solar system during the time when the planets were originally forming. Look at pg. 794-5 in your GS book as an additional resource.

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| Reflection Question:Does this make sense based on what you know about melting point, boiling point, and the elements on the Periodic Table? |

**E.** **Exoplanets** - planets that orbit around other stars. Do they exist? Is our solar system normal compared to other solar systems?

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| Find an article that interests you about exoplanets. Paste the link here, and explain why it caught your attention. |

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| --- |
| Read the [article](https://www.npr.org/sections/krulwich/2013/05/06/181613582/our-very-normal-solar-system-isn-t-normal-anymore). Is our solar system normal? |