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| **The Planets** |
| **The Solar System**   * When a star forms from a **\_\_\_\_\_\_\_\_\_\_\_**, **\_\_\_\_\_\_\_\_\_\_\_**pulls most of the material into the new star. * However, some may also clump together to form large objects called **\_\_\_\_\_\_\_\_\_\_\_** |
| **What is a Planet**  According to the International Astronomical Union (IAU), the definition of a planet is now officially known as a celestial body that:  1. is in **\_\_\_\_\_\_\_\_\_\_\_**around a **\_\_\_\_\_\_\_\_\_\_\_**  2. has sufficient **\_\_\_\_\_\_\_\_\_\_\_**for its self-gravity to overcome rigid body forces so that it assumes a hydrostatic equilibrium (nearly **\_\_\_\_\_\_\_\_\_\_\_**) shape  3. has **\_\_\_\_\_\_\_\_\_\_\_**the **\_\_\_\_\_\_\_\_\_\_\_**around its orbit |
| **Inner Planets**   * **\_\_\_\_\_\_\_\_\_\_\_**planets closest to the sun (**\_\_\_\_\_\_\_\_\_\_\_**planets) * all have/had a rocky crust, dense mantle layer and a very dense core. * all contain **\_\_\_\_\_\_\_\_\_\_\_** * Mercury, Venus, Earth, Mars |
| **Mercury**   * orbits the sun every 88 earth days, rotates every 176 earth days   + this means a year is shorter than a day on Mercury * **\_\_\_\_\_\_\_\_\_\_\_**and **\_\_\_\_\_\_\_\_\_\_\_**of the terrestrial planets * was investigated by Mariner 10 in 1974/75 * it has no real atmosphere nor any moons * weak **\_\_\_\_\_\_\_\_\_\_\_** * has large iron core and magnetic field * Temperature ranges from -180°C to 400°C * pockmarked with numerous impact craters |
| **Venus**   * Orbits the sun every 225 earth days but it rotates (clockwise) every 243 earth days   + this means a Venusian year is shorter than a Venusian day * known as **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (similar diameter, mass, gravity) * weak magnetic field * Often referred to as the evening star * impossible to see the surface from earth due to a thick pale yellow clouds of **\_\_\_\_\_\_\_\_\_\_\_**acid * **\_\_\_\_\_\_\_\_\_\_\_**planet in the solar system due to greenhouse effect the average temperature **\_\_\_\_\_\_\_\_\_\_\_** |
| **Earth**   * Orbits the sun every **\_\_\_\_\_\_\_\_\_\_\_**days * Name come from German “Die Erde” meaning “the ground” * **\_\_\_\_\_\_\_\_\_\_\_**of the inner terrestrial planets * Only planet known to support **\_\_\_\_\_\_\_\_\_\_\_** * Has one natural satellite… the **\_\_\_\_\_\_\_\_\_\_\_** * Atmosphere made of 78% Nitrogen, 21% Oxygen * Temperature range -88℃ to 58℃ * Rotation 24 hrs at 467 m/s; Revolution 365.25 days at 29 km/s * Axis tilt 23.5° |
| **Mars**  Has **2** moons - **\_\_\_\_\_\_\_\_\_\_\_**& **\_\_\_\_\_\_\_\_\_\_\_**   * Was first visited by Vikings 1 & II * May be the only other planet able to harbour **\_\_\_\_\_\_\_\_\_\_\_**and **\_\_\_\_\_\_\_\_\_\_\_** (has polar ice caps) * Has the largest **\_\_\_\_\_\_\_\_\_\_\_**- Olympus Mons * Has the largest **\_\_\_\_\_\_\_\_\_\_\_**- Valles Marineris * The surface is made mostly of **\_\_\_\_\_\_\_\_\_\_\_** * Temperature ranges -140℃ to 20℃ * Orbit 687 Earth days * Rotation: just more than one Earth day (24 hrs 37 min) |
| **The Outer Planets**   * AKA the **\_\_\_\_\_\_\_\_\_\_\_** * Farther away, large, gaseous, windy & violent   **Visiting the Gas Giants**   * 9 Spacecraft have been sent to explore the outer planets |
| **3 Questions to Discuss**  1. Why are gas giants always far away from the star they orbit?  2. Can you fly through Jupiter? Why or why not?  3. Why is Jupiter critical to life on Earth? |
| **Requirements for Life**   * Life on Earth is unique to our solar system. And this requires certain things: * 1. Life is requires \_\_\_\_\_ chemical elements.   + 95% of life is built on **\_\_\_\_\_\_\_\_\_\_\_**.   + These 6 elements are the building blocks of all life on Earth through DNA. * 2. The planet must be **\_\_\_\_\_\_\_\_\_\_\_**, with a solid **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** and **\_\_\_\_\_\_\_\_\_\_\_**.   + The magnetic core deflects **\_\_\_\_\_\_\_\_\_\_\_**from the sun.   + The atmosphere controls the **\_\_\_\_\_\_\_\_\_\_\_**. * 3. The planet must be in the “Goldilocks zone” … Not too hot, not too cold.   + Life requires **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**.     - It acts as a **\_\_\_\_\_\_\_\_\_\_\_**in biochemical reactions.   + IF the planet is too close, the water **\_\_\_\_\_\_\_\_\_\_\_**.   + IF the planet is too far, the water **\_\_\_\_\_\_\_\_\_\_\_**. |
| **Alien Life**  The chances of extraterrestrial life are quite large.  If there is AT LEAST one out of 17 billion planets is in the "Goldilocks Zone”, then these could be our galactic neighbours… Proxima Centauri b  **Will We Never See Them**   * The closest star is Proxima Centauri.   + \_\_\_\_\_ trillion km away.   + This takes light \_\_\_\_\_\_ years to travel. * Using current technology it would take **\_\_\_\_\_\_\_\_** years to reach |
| **Your Assignment**   * Planet cut-out activity * Do:   + 12.4 CYU Q#2-8, 16-19 |

