|  |  |
| --- | --- |
| **Cornell Notes**  **Topic: The Sun**  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **Essential Question:**  **Questions/Main Ideas:** | **Name:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**Block:** \_\_\_\_\_\_\_\_  **Notes:** |
| The Sun | 1. |
|  |  |
|  | 2. |
|  |  |
| Radius and Mass |  |
|  |  |
| Sun Properties | Distance |
|  | Diameter |
|  | Mass |
|  | Temperature |
|  | Core Temp. |
|  | Solar Energy |
|  | Sun’s Make-up |
| Solar Interior  The photosphere is the visible surface of the Sun, residing just above the convection zone. | The Photosphere: |
| Temperature and Density  Just as with the Earth, the temperature increases with decreasing distance from the center.  The density increases the same way thanks to the weight of the material above the core pushing inward, compressing the gasses. |  |
| Radiative Zone  In the radiative zone, the density of the gas is high enough that photons are continuously being absorbed and re-emitted, eventually makeing their way intot he convection zone. | 1.  2. |
| Very Old Light |  |
| The Convection Zone  The convection zone is located above the radiative zone.  Energy passing through the radiative zome heats the base of the convection zone, causing the plasma to rise, carrying the energy toward the surface. |  |
| Granulation |  |
| The Sun Atmosphere |  |
| The Temperature Profile | 1. |
|  |  |
|  | 2. |
|  |  |
|  | 3. |
|  |  |
| The Chromosphere | 1. |
|  |  |
|  | 2. |
|  |  |
|  | 3. |
|  |  |
| The Corona | 1. |
|  |  |
|  | 2. |
|  |  |
|  | 3. |
|  |  |
| How the Sun Works  Within the Sun, gravitational forces pull the Sun's material down towards the center, while pressure forces push back.  This balance of forces is called hydrostatic equilibrium.. | 1.  2.  3. |
| Pressure in the Sun  1.  2. | In a cool gas, atoms have less thermal energy (a form of kinetic energy) and are moving more slowly.  This will result in a low pressure gas.  In a hotter gas, the atmoms are moving more rapidly, resulting in a higher pressure. |
| Powering the Sun |  |
| Nuclear Fusion |  |
|  |  |
|  |  |
| Solar Seismology | 1. |
|  |  |
|  | 2. |
|  |  |
|  | 3. |
|  |  |
| Solar Magnetic Activity |  |
|  |  |
| Sunspots | 1. |
|  | 2. |
|  | 3. |
|  | 4. |
| Origin of Sunspots | Strong magnetic activity under the surface of the Sun can prevent hot gas from rising, resulting the a cooling surface.  The cooler surface emits less light, and appears dark. |
| Prominences |  |
| Solar Flares | 1. |
|  | 2. |
| Source of Flares | 1. |
|  | 2. |
| Coronal Mass Ejections |  |
| Impact of Solar Flares |  |
| The Solar Winds | 1. |
|  | 2. |
|  | 3. |
|  | 4. |
| The Solar Cycle | The solar (or sunspot) cycle is an increase and decrease in the number of sunspots and solar activity over the course of around 11 years.  1.  2.  3. |
| Differential Rotation |  |
| Cause of Solar Cycle | 1. |
|  |  |
|  | 2. |
|  |  |
|  | 3. |
|  |  |
| Changes in Solar Cycle | 1. |
|  |  |
|  | 2. |
|  |  |
|  | 3. |
|  |  |
| Solar Cycle and Climate | There does seem to be a correclation between sunspot number and ocean temperatures.  Few sunspots existed from 1645-1715, the Maunder Minimum, the same time of the “little ice age in Europe and North America. |
|  | 1. |
|  | 2. |
|  | 3. |
| Summary: | |
|  | |
|  | |
|  | |
|  | |