# Liber Astarte

## Detailed Star System and Planetary Creation Guide


**An Unofficial Supplement**
**For Dark Heresy , Rogue Trader and Deathwatch**

# Foreword

## So, what's this 'ere then?

While the directions for populating the void given in the Game Master's Kit for Rogue Trader may be great for generating quick star systems, sometimes a game master wants a more fleshed out or complete description.

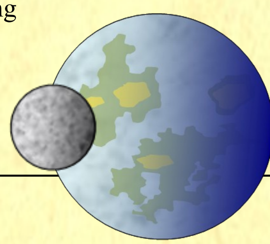
That's where this comes in.

What you have before you is a much more detailed star system generator. Maybe too detailed. Many things are still treated with a degree of needed abstraction, but within the tables and descriptions, many of them optional, Game Masters should find a wealth of information for developing as detailed a star system or planet as they may wish to and ideas for using the information in game.

This work is divided into three parts:

1. Star System Creation: Allows the game master to develop a fairly comprehensive star system with a wide range of conditions and variables. Allows for the creation of single or multiple star systems.
2. Detailed Planet Creation: Allows for the creation of detailed planets complete with size, atmosphere types, cryosphere and humidity among other things. Descriptions of the world types are provided.

Everything is presented in what hopefully is a fairly easy to use format of steps and tables. Take and use what you will. The greatest tool a game master has is the imagination. Hopefully this will serve to inspire you .



## Contents :



Future additions may include rules and facts for more exotic stars, such as pulsars, some premade starsystems and maybe some ideas for creating exotic xeno-life.

Future works will be uploaded as separate addendums to this work.

# I. Star System Generation

**The characteristics of stars which we will need to determine.**

A star has five main characteristics, but only two of which concern us here: (1) spectra or color, and (2) size. Color depends on surface temperature, and brightness depends on surface temperature and size. Mass affects the rate at which a star of a given size produces energy and so affects surface temperature. To make these relationships easier to understand, astronomers developed a graph called the Hertzsprung-Russell (H-R) diagram to help astronomers understand and describe the life cycles of stars.

**Luminosity classes**

In the 1930's, American astronomers William W. Morgan and Philip C. Keenan invented what came to be known as the MK luminosity classification system for these groups. Astronomers revised and extended this system in 1978. In the MK system, the largest and brightest classes have the lowest classification numbers. The MK classes are: Ia, bright supergiant; Ib, supergiant; II, bright giant; III, giant; IV, subgiant; and V, main sequence or dwarf.

**Spectral classes**

In the MK system, there are eight spectral classes, each corresponding to a certain range of surface temperature. From the hottest stars to the coolest, these classes are: O, B, A, F, G, K, and M. Each spectral class, in turn, is made up of 10 spectral types, which are designated by the letter for the spectral class and a numeral. The hottest stars in a spectral class are assigned the numeral 0; the coolest stars, the numeral 9.

A complete MK designation thus includes symbols for luminosity class and spectral type. For example, the complete designation for the sun is G2V. Alpha Centauri A is also a G2V star, and Rigel's designation is B8Ia.

**Spectral class of star.**

| Star | Spectrum | Surface Temperature | Average Mass Sun = 1 | |
|---|---|---|---|---|
| W | Blue-Violet | 30,000 to 150,00 k | > 20 | |
| O | Blue | 30,000 to 60,000 k | 60 | |
| B | Blue White | 10,000 to 30,000 k | 18 | |
| A | White | 7500 to 10,000 k | 3.2 | |
| F | Yellowish White | 6000 to 7500 k | 1.3 | |
| G | Yellow | 5000 to 6000 k | 1.1 | |
| K | Orange | 3500 to 5000 k | 0.8 | |
| M | Red | < 3500 k | 0.3 | |

**Luminosity class of star.**

| Type | Star Description |
|---|---|
| Ia | Very luminous supergiants |
| Ib | Less luminous supergiants |
| II | Luminous giants |
| III | Giants |
| IV | Sub-giants |
| V | Main sequence stars (dwarf stars) |
| VI | Subdwarf |
| VII | White dwarfs |

**A note on orbital placement**

The location of orbits used here is based upon the *Titus-Bode Law*. There is still some controversy about the validity of the theory. For the purpose of game mechanics it is quite useful.

**Start by determining Star System Information**
**Follow numbered steps.** Record on Star System Data Record Sheet

1. Determine system type.
2. Determine class and size of star.
3. Determine decimal classification.
4. If star is part of a multiple star system determine spectrum class and size of companion (s) using table 4a. If star is solitary skip part 4.
5. Determine orbital zones around star. If star is in a multiple star system table 5b can be consulted for zones around each star.
6. In this step determine star's Inner, Bio, and Outer zones using appropriate table for the star class.
7. Determine the contents of each available orbit.
8. Determine if there are any captured bodies.
9. Determine satellites

**1. Determine System Type**

| d10 | Result |
|---|---|
| 1 - 5 | Solitary |
| 6 - 10 | Multiple |

**2. Determine Star Class and Size**

Roll for each star in system

**2a.** Primary Star

| 2d10 | Class Result | 2d10 | Size Result |
|---|---|---|---|
| 2 - 3 | A | 2 | II |
| 4 - 7 | F | 3 - 4 | III |
| 8 - 12 | G | 5 - 8 | IV |
| 13 - 17 | K | 9 - 18 | V |
| 18 - 20 | M | 19 - 20 | VI |

**2b.** Multiple System Companion

| 2d10 | Class Result | 2d10 | Size Result |
|---|---|---|---|
| 2 | A | 2 | II |
| 3 -4 | F | 3 | III |
| 5 - 8 | G | 4 - 6 | IV |
| 9 - 13 | K | 7 - 14 | V |
| 14 - 20 | M | 15 - 18 | VI |
| | | 19 - 20 | d * |

**2c**. Dwarf Star Class

| 2d10 | Dwarf Type | |
|---|---|---|
| 2 - 4 | dA | White Dwarfs |
| 5 - 7 | dF | White Dwarfs |
| 8 - 11 | dG | White Dwarfs |
| 12 - 16 | V | Red Dwarfs |
| 17 - 20 | VI | Red Dwarfs |

d* Result: Roll on Table 2c.

**3. Decimal Classification**
Roll 1d10

For a result between 0 - 9. Place after class and before size.
i.e.: G**3** V, O**6** III, etc

**NOTE:**
d class white dwarfs do not use decimal classification. But red dwarfs do.
5 to 9 are not possible for K and H class in size IV.
B,A, and F0 to 4 are not possible in size VI.

**Use of the terms "Multiple Star System", "Binary", "Triple", etc.**

A star system consisting of two stars is known as a binary star or binary star system.
Examples of binary systems are Sirius and Procyon .

Multiple star systems are systems of more than two stars. Multiple star systems are called triple, trinary or ternary if they contain three stars; quadruple or quaternary if they contain four stars; quintuple with five stars; sextuple with six stars; septuple with seven stars; and so on. Most multiple star systems known are triple systems.

Open star clusters typically have from 100 to 1,000 stars.

## 4a. Companion Star Orbit For Multiple Systems

| 1d10 | Orbit |
|---|---|
| 1 | 1 Close * |
| 2 | 2 |
| 3 | 1d10 + 2 |
| 4 | 1d10 + 4 |
| 5 | 1d10 + 6 |
| 6 | 1d10 + 8 |
| 7 | 1d10 + 10 |
| 8 - 10 | Roll on 4b. |

## 4b. Far Companion Star Orbit

Roll 1d10 x 1000 to determine the companions orbital distance in AU. Far companion stars may themselves be multiple systems. Go back to **System Type** to determine.

**NOTE:**
Any star system with small massive stars, such as a white dwarf, within 2au of the primary will be a candidate for periodic novas. The more massive smaller star leaches stellar material from it's less dense companion. As the gas is compressed and heated on or near the surface of the smaller star nuclear fusion of the material will occur, blasting the shell of gas away in a violent nova explosion. In such a system the close orbit planets and perhaps even the outer planets may be striped of their atmospheres. Life as we know it on the surface of such worlds will be impossible.
Very close stars may be physically touching, making for a very interesting display.

## 5a. Determine Number of Orbits

Roll 1d10

**Modifiers**

Size

| | |
|---|---|
| Ia, Ib | +9 |
| II | +8 |
| III | +6 |

Class

| | |
|---|---|
| M | -6 |
| K | -3 |

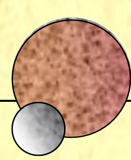
## 5b. Available Orbits in Multiple Star Systems ( Optional )

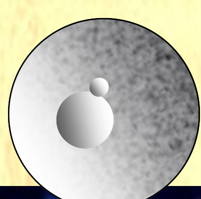
| B in Orbit | Between B and A | Beyond B | B Itself |
|---|---|---|---|
| 1 | - | 2+ | 0 |
| 2 | 0 | 3+ | 0 - 1 |
| 3 | 0 - 1 | 4+ | 0 - 1 |
| 4 | 0 - 1 | 5+ | 0 - 2 |
| 5 | 0 - 2 | 6+ | 0 - 2 |
| 6 | 0 - 2 | 7+ | 0 - 3 |
| 7 | 0 - 3 | 8+ | 0 - 4 |
| 8 | 0 - 3 | 9+ | 0 - 5 |
| 9 | 0 - 4 | 10+ | 0 - 6 |
| 10 | 0 - 5 | 11+ | 0 - 7 |
| 11 | 0 - 6 | 13+ | 0 - 8 |
| 12 | 0 - 7 | 14+ | 0 - 4 |
| 13 | 0 - 8 | 15+ | 0 - 5 |
| +1 | +1 | +1 | +1 |

## 6. Stellar Orbital Zone Charts

Use these tables to determine Inner, Outer and habitable zones around a star.
Stars are listed in order of size.
Next proceed to step 7, Determine orbital contents.

- Red: Orbit lies within the outer atmosphere of the star.
- Orange: Temperature too high, planet would be vaporized.
- Yellow: Inner zone
- Light blue: Habitable biozone
- Blue: Outer zone





### Star Size d Red Dwarf

Orbit around star

| Star | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| dK0 | Blue | Blue | Blue | Blue | Blue | Blue |
| dK5 | Blue | Blue | Blue | Blue | Blue | Blue |
| dM0 | Blue | Blue | Blue | Blue | Blue | Blue |
| dM5 | Blue | Blue | Blue | Blue | Blue | Blue |

### Star Size d White Dwarf

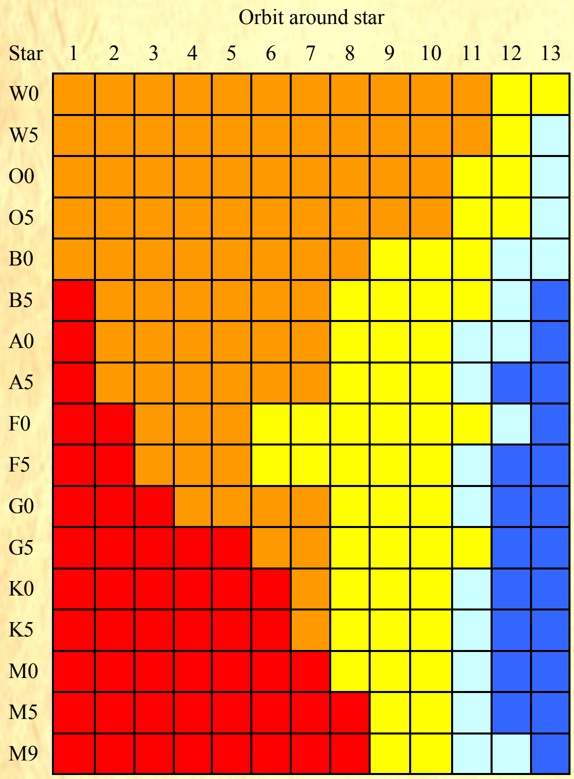
Orbit around star

| Star | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| dA | Light blue | Blue | Blue | Blue | Blue | Blue |
| dF | Blue | Blue | Blue | Blue | Blue | Blue |
| dG | Blue | Blue | Blue | Blue | Blue | Blue |

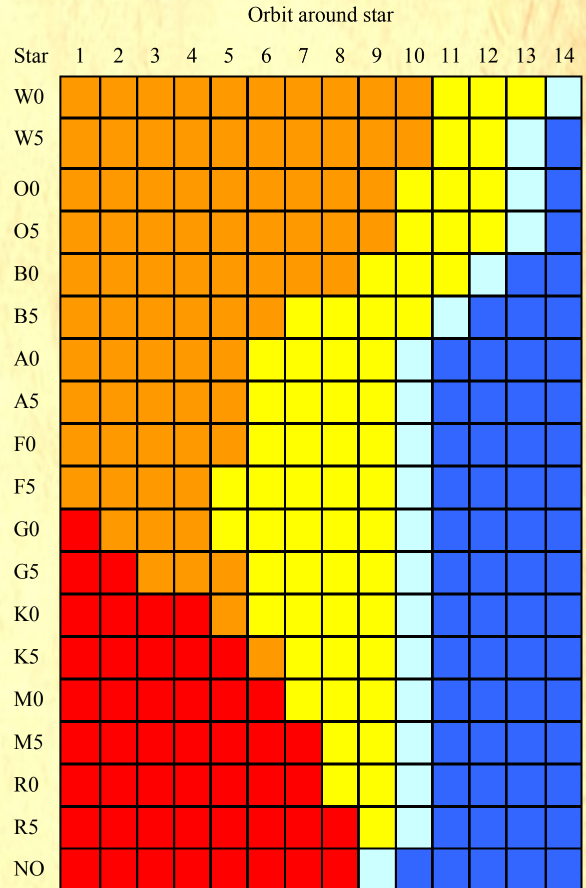
**Note:**
Orbit 0 lies at .2au from the star.

Remember that white dwarfs are the result of a dying star, thus many of the inner orbits, 0 - 4 may be empty, having long since been vaporized. Instead, rogue worlds recently captured or worlds newly formed from the debris of the old may inhabit these zones.

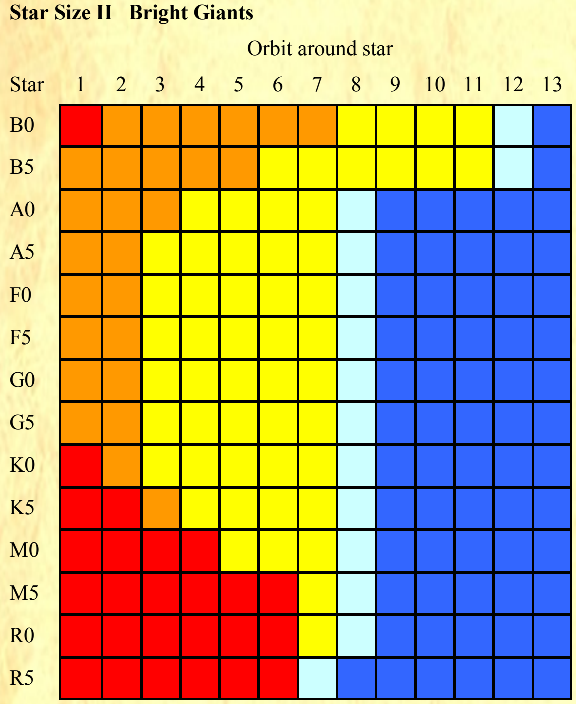
**Star Size Ia Bright Supergiants**



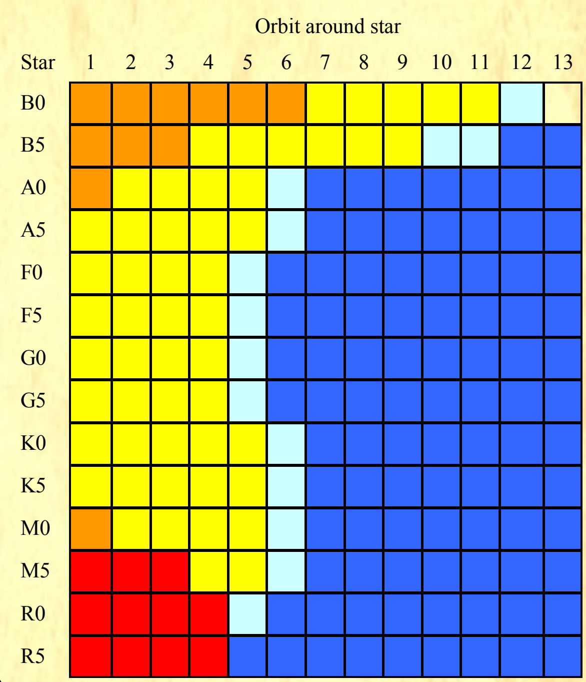

**Star Size IB Supergiants**

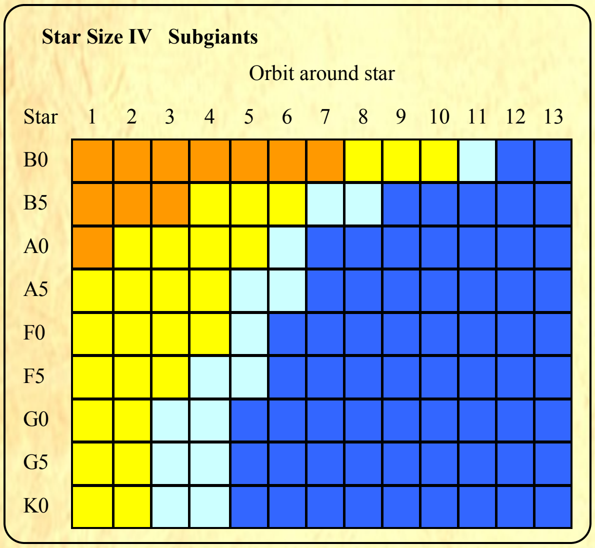


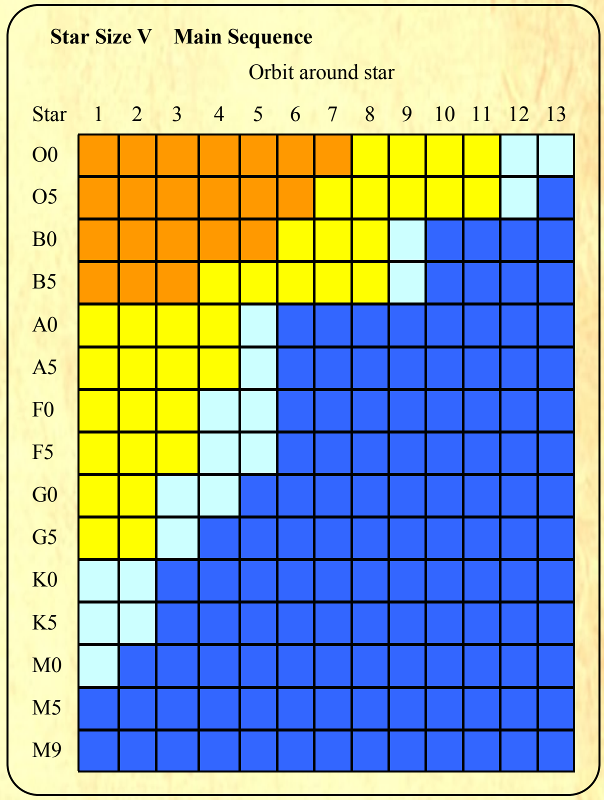

**Star Size II Bright Giants**

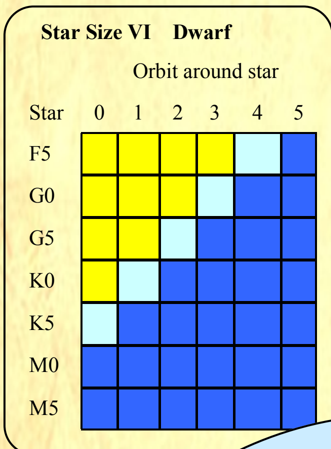



**Star Size III Giants**



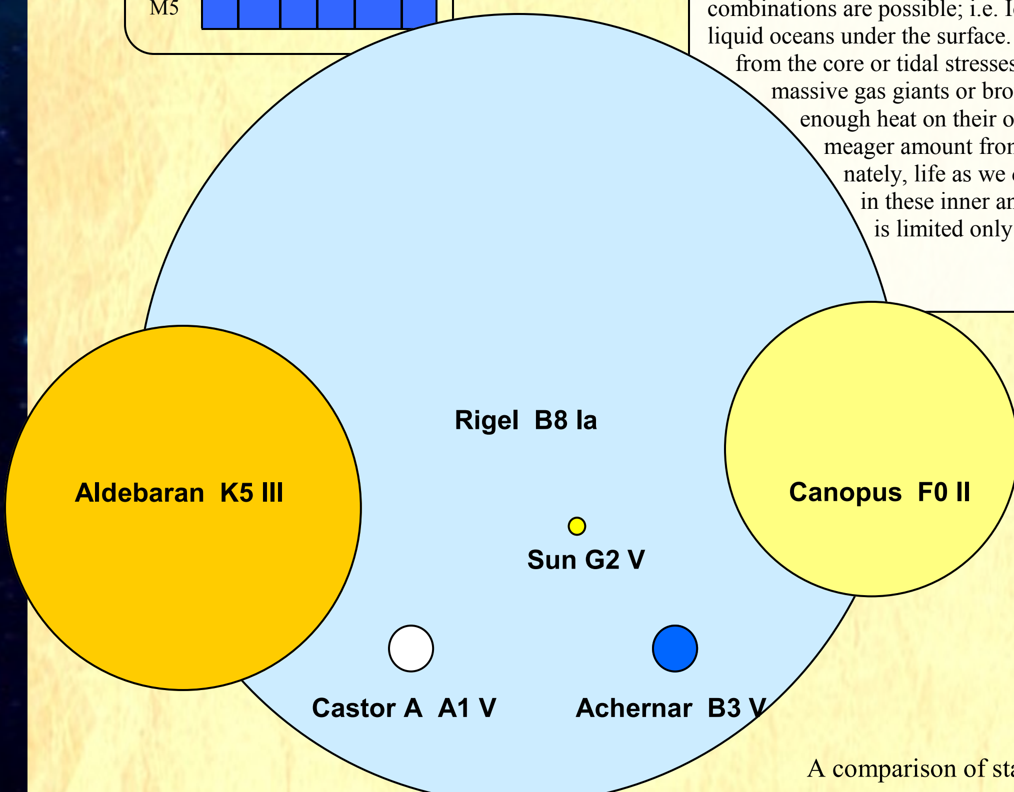



**A Note on Biozones.**

The biozone is the area around a star where liquid water may be found, and thus life as we know it is possible. Other combinations are possible; i.e. Iceball worlds with vast liquid oceans under the surface. Worlds where ice heated from the core or tidal stresses, or worlds orbiting super massive gas giants or brown dwarfs which radiate enough heat on their own to compensate for the meager amount from the parent star. Alternately, life as we don't yet know it may thrive in these inner and outer zones. The universe is limited only by your imagination!




A comparison of star sizes. I.

### 7. Determine Orbital Contents

Use these tables to determine Inner, Outer and habitable zones around a star.
Roll for Each Orbit
Proceed to the next step.

**Inner System Zone**

| d100 | Planet Description |
|---|---|
| 01- 10 | Empty orbit |
| 11- 21 | Asteroid belt |
| 22 - 40 | Mesoplanet |
| 40 - 60 | Small Terrestrial |
| 61 - 65 | Geoactive |
| 66– 71 | Super Terrestrial |
| 72 | Small Gas giant |
| 73 | Gas giant |
| 74 - 87 | Reducing |
| 88 | Gas Supergiant |
| 89 | Gas Ultragiant / Brown dwarf |
| 90 - 100 | Ultra Hostile |

**Note:**

World classes **Proto-planet**, and **Exotic** should not be determined randomly. Proto-planet worlds are found normally, but not exclusively, in young star systems with other proto-planet worlds. The Exotic class should rare. These worlds and their particulars should be assigned by the Game Master and not left to chance.

**Habitable Zone**

| d100 | Description |
|---|---|
| 01- 10 | Empty orbit |
| 11- 21 | Asteroid belt |
| 22 - 30 | Mesoplanet |
| 31 - 40 | Small Terrestrial |
| 41 - 45 | Geoactive |
| 46 - 48 | Super Terrestrial |
| 49 - 56 | Desert |
| 57 | Gas supergiant |
| 58 | Gas giant |
| 59 - 64 | Marginal |
| 65 - 70 | Marginal |
| 71 - 81 | Terrestrial |
| 72 - 77 | Reducing |
| 78 - 83 | Oceanic |
| 84 - 89 | Glaciated |
| 90 | Gas Ultragiant |
| 91 | Gas Ultragiant / Brown dwarf |
| 92 - 100 | Ultra Hostile |

**Outer System Zone**

| d100 | Description |
|---|---|
| 01- 10 | Empty orbit |
| 11- 21 | Asteroid belt |
| 22 | Mesoplanet |
| 23 | Small Terrestrial |
| 24 | Geoactive |
| 25 - 29 | Super Terrestrial |
| 30 - 40 | Gas supergiant |
| 51 - 71 | Gas giant |
| 72 - 82 | Gas Ultragiant |
| 83 - 88 | Gas Ultragiant / Brown dwarf |
| 89 - 94 | Ice World |
| 95 - 100 | Dirty Snowball |

**7a. Determine Primary Asteroid Composition** ( Optional )

| 1d10 | Class | Composition |
|---|---|---|
| -2 - 4 | aM | Nickel-Iron. Perhaps other heavy metals |
| 5 - 7 | aS | Stone and rock |
| 8 - 9 | aC | Carbon, Hydrated materials, hydrocarbons. |
| 10+ | aI | Water ice, frozen methane, other frozen gasses or liquids. These are the bodies that make up comets. |

**Modifiers:**

Inner System -2 Outer System +3
Biozone -2

## 8. Determine if there are any Captured Planets in System ( All Steps Optional )

Use this table to determine number of Captured Planets a Star System has, if any
Note on Star System Data Sheet

### 8a. Captured or Rouge Planets

Number of captured planets is equal to: 1d10 -6

### 8b. Placement of Captured Planets

Determine orbit placement of each with 1d10 +2 roll. Then roll for a decimal placement to create an orbital position like 5.8

Determine planet type as before.

### 8b. ( Option ) Creating irregular orbits

Note orbital placement of planet, asteroid, or comet as in step 8b.
Roll again to get another Orbital Placement as in 8b, this time without the -2 modifier, leaving you with 2 numbers; e.g. 3.6 , 10.5.
The smaller number is the closest approach to the star, the larger the furthest . The orbits in-between are crossed by this planet.

### 8c. Captured or Irregular / Rouge Asteroids

Roll Just as for a *Captured Planet*.

## 9. Determine Satellites for Each World

Use these tables to determine number of satellites a world has.
Note on Star System Data Sheet and/or Planet Data Sheet

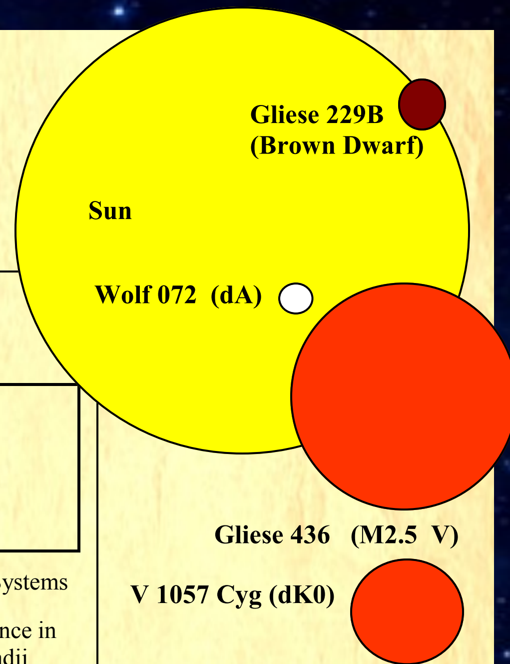
### Satellite and Ring Table

| | Planet Classes | | | | | |
|---|---|---|---|---|---|---|
| Type of Moon | Classes Mesoplanet Sm. Terrestrial | Classes Terrestrial, all | Classes Sm. Gas Giant Gas Giant | Classes Gas Supergiant Gas Ultragiant | General Information | Typical Size ( 1000 km ) |
| Minor ring system | - | 1d10 - 9 | 1d10 - 5 | 1d10 - 2 | Thin rings composed of dust, stone or in outer system, Ice crystals. | From Microscopic to dust to Ice crystals |
| Major ring system | - | - | 1d10 - 8 | 1d10 -5 | Thick rings composed of dust, stone or in outer system, Ice. | From Microscopic to dust to Ice crystals to boulders. |
| Moonlets | 1d10 - 7 | 1d10 - 6 | 1d10 | 1d10 +3 | Small class B worlds not much more than asteroids captured by the planet's gravity. In outer system these may be bits of Ice. | 1 or less |
| Small Moons | 1d10 - 9 | 1d10 - 7 | 1d10 - 1 | 1d10 +1 | Small rocky Class B world or in outer system, Class U or W ice worlds, no atmosphere. | 2 |
| Medium Moons | - | 1d10 - 9 | 1d10 -3 | 1d10 | Rocky Class B or in outer system, Class U or W ice worlds, no atmosphere. | |
| Large Moons | - | - | 1d10 - 6 | 1d10 -4 | As above, possible tenuous atmosphere | 3 - 4 |
| Huge Moons | - | - | 1d10 -8 | 1d10 - 6 | Roll as you would for a planet ignoring rolls for Super terrestrial or any gas Giant | 5+ |

**9a. Determine Distance of Moon from Parent Planet ( Optional )**

Non-Gas Giant planets use chart 1 on table 10a.
For Gas Giants consult class and roll 1d10 to determine table.
For Ring Systems consult Ring System Table.

Multiple moons in an orbit are allowed. These are called co-orbital




A comparison of star sizes. II.

**9a. Distance of Moon from Parent Planet in Radii**

| **1d10 Roll** | | | | |
|---|---|---|---|---|
| Small Gas Giants | 1 - 7 | 8- 10 | | |
| Gas Giants | 1 - 6 | 7 - 9 | 10 | |
| Ultragiants | 1 - 4 | 5 - 8 | 9 - 10 | |
| | Chart 1<br>Close Orbits | Chart 2<br>Med. Orbits | Chart 3<br>Far Orbits | Ring Systems |
| 1d20 Roll | Distance in Radii | Distance in Radii | Distance in Radii | Distance in Radii |
| 2 | 15 | 90 | 185 | 1 |
| 3 | 16 | 95 | 190 | 2 |
| 4 | 17 | 100 | 195 | 3 |
| **5** | 18 | 105 | 200 | 4 |
| **6** | 19 | 110 | 205 | 5 |
| **7** | 20 | 115 | 210 | 6 |
| **8** | 25 | 120 | 215 | 7 |
| **9** | 30 | 125 | 220 | 8 |
| **10** | 35 | 130 | 230 | 9 |
| **11** | 40 | 135 | 240 | 10 |
| **12** | 45 | 140 | 250 | 11 |
| **13** | 50 | 145 | 260 | 12 |
| **14** | 55 | 150 | 270 | 14 |
| **15** | 60 | 155 | 280 | 16 |
| **16** | 65 | 160 | 290 | 18 |
| **17** | 70 | 165 | 300 | 20 |
| **18** | 75 | 170 | 320 | 25 |
| **19** | 80 | 175 | 340 | 30 |
| **20** | 85 | 180 | 360 | 35 |
| | Close Orbits | Med. Orbits | Far Orbits | |

**9b. Determining Distance of Moon from Parent Planet in Km. Optional )**

Planet's Radius x Orbital Radii = Distance in Km.

**NOTE:**
Captured planets may have very irregular orbits, possibly crossing the orbits of other worlds and causing gravitational havoc in a star system until they settle into a stable orbit or crashes into another planet.

**Remember -**

**Aim thy Weapon at the Un-clean.**
**Seek the Guidance of The God Emperor of Mankind that thy aim be true.**
**Invoke the machine spirits of the Delivery System and Ordi-nance that they may Awaken and Slay the Enemies of Man.**

**Lay down Thy Firepower Right-eously and in Great Quantity.**

**Cleanse the Unclean with Fire and Bolt, Sword and Las.**

# II. Planet Generation

**Use these tables to determine detailed Planetary Information**
**Follow numbered steps.** Record on Planetary Data Record Sheet

1. Determine World Size.
2. Determine World Gravity.
3. Determine Atmospheric Makeup.
4. Determine Hydrosphere, Cryosphere, Volcanism and Tectonic Plate Activity.
5. Determine Land Area Percentage.
6. Determine Relative Humidity Percentage.
7. Determine Hours in Planetary Day
8. Determine Planetary Mean Temperatures
9. Determine General Climate.
10. Determine Minerals found on Planet
11. Determine other items of interest.

**Determine World Size, Diameter**

**1a. Non Gas Giants**

| Description | Size ( x1000 km ) | Note |
|---|---|---|
| Proto planet | 2d10 | |
| Mesoplanet | 1d10 - 6 | Treat any result of less than 1 as 800km or 0 .8 |
| Small Terrestrial | 1d10 + 3 | Treat any result of more than 9 as 9 |
| Terrestrial , All | 1d10 + 5 | Treat any result of less than 8 as 8 |
| Super Terrestrial | 2d10 + 10 | Treat any result of less than 16 as 16 |
| Chthonian | 2d20 | |
| Ice World | 1d10 | Treat any result of less than 4 as 4 |
| Dirty Snowball | 1d10 | Treat any result of less than 4 as 4 |
| Ultra Hostile | 1d10 + 5 | |

**1b. Gas Giants**

| Type | Size ( x1000 km ) |
|---|---|
| Small Gas giant | 7d10 +30 |
| Gas giant | ( 1d10 x10 ) +100 |
| Gas Supergiant | ( 1d10 x10 ) +200 |
| Gas Ultragiant / Brown dwarf | ( 1d10 x10 ) +200 |

**Note:** Any Gas Giant with a diameter of greater than 140 km is a candidate for a brown dwarf if dense enough, 13 times or greater than the mass of Jupiter.

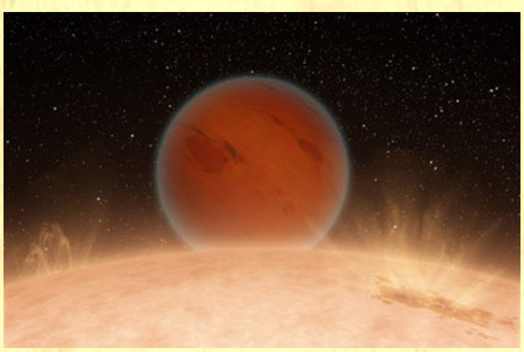
**1c. Determine World Size, Equatorial Circumference**

3.1416 x Diameter = Circumference

**1d. Determine World Size, Surface Area (Optional )**

( 3.1416 x radius ) x 4 = Surface area in km$^2$

Radius is equal to 1/2 diameter



**2. Determine World Gravity (Optional )**

Diameter / 12 = Gravity in standard G's

**The True Value of a Man is Measured by His Death, or the Death of His Enemies.**

### 3. Determine Atmospheric Makeup

Consult table below for possible atmospheric gasses. These are only probable recommendations based upon planetary class. Feel free to be creative. Remember, the gases listed are the primary atmospheric gas. Other gasses in lesser quantities will be present.

#### 3a. Determine Atmospheres for Planets other than Inhabitable (Optional)

Treat Less than 1 as 1, more than 10 as 10

| 1d10 | Proto-planet |
|---|---|
| 1 - 2 | None |
| 3 - 4 | Hydrogen |
| 5 | Hydrogen Sulfide |
| 6 | Carbon Dioxide |
| 7 - 10 | Methane |

| 1d10 Roll | Geoactive |
|---|---|
| 1 | None |
| 2 | Hydrogen |
| 3 | Hydrogen Fluoride |
| 4 - 7 | Hydrogen Sulfide |
| 8 - 10 | Sulfur Dioxide |

| 1d10 Roll | Mesoplanet |
|---|---|
| 1 - 3 | None |
| 4 - 5 | Hydrogen |
| 6 - 8 | Helium |
| 9 - 10 | Methane |

| 1d10 Roll | Reducing or Ultra Hostile |
|---|---|
| 1 | Hydrogen |
| 2 | Bromine |
| 3 - 4 | Hydrochloric acid |
| 5 - 6 | Sulfuric Acid |
| 7 | Oxygen |
| 8 | Fluorine |
| 9 - 10 | Chlorine |

| 1d10 | Marginal |
|---|---|
| 1 - 5 | Carbon Dioxide |
| 6 - 10 | Methane |

| 1d10 | Chthonian |
|---|---|
| 1-5 | None |
| 6 - 7 | Hydrogen |
| 8 - 10 | Helium |

| 1d10 Roll | Ice World, Dirty Snowball |
|---|---|
| 1 | None |
| 2 | Hydrogen |
| 3 - 10 | Methane |

| 1d10 Roll | Super Terrestrial |
|---|---|
| 1 - 5 | Carbon Dioxide |
| 6 | Hydrogen Sulfide |
| 7 - 9 | Methane |
| 10 | Chlorine |

| 1d10 Roll | Small Terrestrial |
|---|---|
| 1-5 | None |
| 6 - 7 | Hydrogen |
| 8 - 10 | Helium |

**Modifiers:** Treat Less than 1 as 1, more than 10 as 10. Size is Diameter / 1000

| Location | | Size | |
|---|---|---|---|
| Inner System | -2 | Under 5 | -2 |
| Biozone | +1 | Over 8 | +1 |
| Outer System | +2 | | |

#### 3b. Determine Atmospheric Density (Optional)
Uninhabitable Worlds

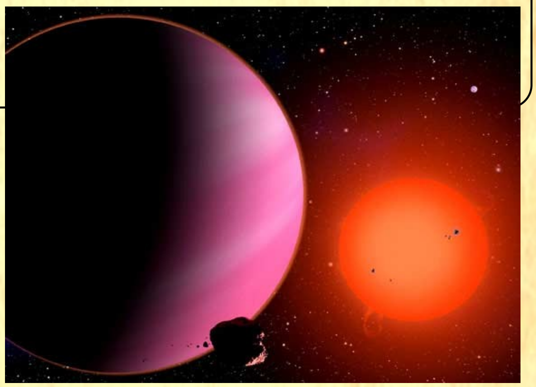
| 1d10 Roll | Density | Approximate Earth Standard Density | Example |
|---|---|---|---|
| 1 | Very Tenuous | 0.00000001 | Earth's Moon |
| 2 | Tenuous | 0.000001 | Mercury |
| 3 | Very Thin | .01 | Mars |
| 4 - 5 | Thin | .3 | Mt. Everest |
| 6 - 7 | Medium | 1 | Earth Standard, Sea Level |
| 8 | Thick | 3 | |
| 9 | Dense | 10 | |
| 10 | Very Dense | 90 + | Venus |

Modifiers: . Size is Planetary Diameter / 1000

| Size | | Size | | Size | |
|---|---|---|---|---|---|
| Under 3 | -8 | 10 | 0 | 18 | +5 |
| 3 | -7 | 11 | +1 | 19 | +5 |
| 4 | -6 | 12 | +2 | 20 | +6 |
| 5 | -5 | 13 | +2 | 21 | +6 |
| 6 | -4 | 14 | +3 | 22 | +7 |
| 7 | -3 | 15 | +3 | 23 | +7 |
| 8 | -2 | 16 | +4 | 24 | +8 |
| 9 | -1 | 17 | +5 | 25 + | +8 |

#### 3c. Determine Atmospheric Density for Oxygen-Nitrogen Worlds
Terrestrial habitable worlds only

| 1d10 | Density | Approximate Earth Standard Density | Example |
|---|---|---|---|
| 1 - 2 | Thin | .5 | Mountain Top |
| 3 - 8 | Earth Standard | 1 | Earth Standard, Sea Level |
| 9 - 10 | Thick | 1.5 | |



## 4. Determine Hydrosphere, Cryosphere, Volcanism and Tectonic Plate Activity

**Treat results above 100 as 100 and below 0 as 0.**
Inner System worlds will have Hydrosphere and Cryosphere ratings of 0.
Gas Giants will have 0 in each of these categories.

| Description | Hydrosphere % Biozone | Cryosphere % Biozone | Cryosphere % Outer System | Note | Volcanism | Tectonic Plate Activity |
|---|---|---|---|---|---|---|
| Proto planet | 0 | 0 | 0 | Surface too hot | 100 | 100 |
| Geoactive | 1d10 x10 | 1d10 x10 | 1d10 x10 | | 1d10 +5 x10 No higher than 80 | 1d10 +5 x10 No higher than 90 |
| Mesoplanet | 0 | 0 | 1d10 x10 | Inner zone planets may have small amounts of Water Ice in shadows and craters | 1d10 -2 | 0 |
| Small Terrestrial | 0 | 1d10 / 2 x10 | 1d10 x10 | | 1d10 -6 x10 | 1d10 -6 x10 |
| Terrestrial, Hostile | 0 | 0 | 1d10 x 10 | | 1d10 -6 x10 | 1d10 -6 x10 |
| Terrestrial, Desert | 2d20 -2 | 1d10 -1 x10 | na | | 1d10 -6 x10 | 1d10 -6 x10 |
| Terrestrial, Glaciated | 1d10 x10 | 1d10 +7 x10 | na | | 1d10 -6 x10 | 1d10 -6 x10 |
| Terrestrial, Marginal | 1d10 -6 x10 | 1d10 -1 x10 | na | | 1d10 -6 x10 | 1d10 -6 x10 |
| Terrestrial, Oceanic | 1d10 +7 x10 | 1d10 x10 | na | | 1d10 -6 x10 | 1d10 -6 x10 |
| Terrestrial, Paradise | 1d10 x10 No higher than 80. No lower than 20 | 1d10 x10 No higher than 80. No lower than 20 | na | | 1d10 -6 x10 | 1d10 -6 x10 |
| Terrestrial, Reducing | 0 | 0 | na | Atmospheres and temperatures may not allow for oceans or ice. | 1d10 -4 x10 | 1d10 -6 x10 |
| Terrestrial, Ultra Hostile | ? | ? | ? | Atmospheres and temperatures may not allow for oceans or ice. | 1d10 -5 x10 | 1d10 -5 x10 |
| Super Terrestrial | 1d10 x10 | 1d10 x10 | 1d10 +5 x10 | | 1d10 -4 x10 | 1d10 -6 x10 |
| Dirty Snowball | na | na | 1d10 +3 x10 | | 1d10 -7 x10 | 1d10 -7 x10 |
| Ice World | na | na | 1d10 +7 x10 | | 1d10 -7 x10 | 1d10 -8 x10 |
| Chthonian | 0 | 0 | 0 | Some small amounts of ice and dust may be present, collected by gravity of the planet | 0 | 0 |
| | | | | | | |

Worlds in blue are capable of earth-like life and inhabitable by humans.

**An Explanation of Terms Used**

**Hydrosphere :** The percentage of a worlds surface that is covered by water in the form of oceans, lakes, swamps, etc. The higher this number the wetter the world. Optionally, on non-habitable, non-oxygen nitrogen worlds with exotic atmospheres this will reflect the atmospheric mix. These worlds could have seas of water, liquid hydrocarbons, liquid hydrochloric acid, etc.

**Cryosphere :** The percentage of a worlds surface that is covered by Ice. The higher this number the colder the world. Optionally, on non-habitable, non-oxygen nitrogen worlds with exotic oceans this will reflect the hydrosphere mix. Iceball and dirty snowball type worlds will be completely covered by water ice, frozen carbon dioxide, frozen methane, or a mix of these ices. Other worlds could have ice caps and glaciers of other chemical compounds, frozen hydrocarbons such as ethane and propane, etc. In this and the above case a little time studying the planets and moons in our own solar system and various chemicals particularly those abundant in nature and their freezing and melting points can go a long way.

**Volcanism :** This is used as a relative indicator of volcanic activity on a world. A world with a low volcanism ratio would have few and infrequent volcanic activity while a higher ratio would indicate more frequent and violent eruptions. For comparison, Earth would currently rate a 5, Mars a 2, and Io an 8.

**Tectonic Activity :** This is used as a relative indicator of tectonic plate movement on a world and thus the frequency of planetquakes. Young worlds will typically have high tectonic activity and volcanism ratios with the ratios decreasing as the crust cools and thickens. For comparison, Earth would currently rate a 4, Mars a 1, and Venus a suspected 7.

**5. Determine Land Area Percentage**

100 - ( Hydrosphere % + Cryosphere % ) = Land Area

**6. Determine Relative Humidity Percentage**
Habitable worlds only ( H, M, O, P )

( 1d10 + Hydrosphere ) /2 x10 = Relative Humidity %

**7. Determine Hours in Planetary Day**

3d10 + ( size of satellites /1000 )

**8. Determine Planetary Mean Temperatures**
Habitable worlds only

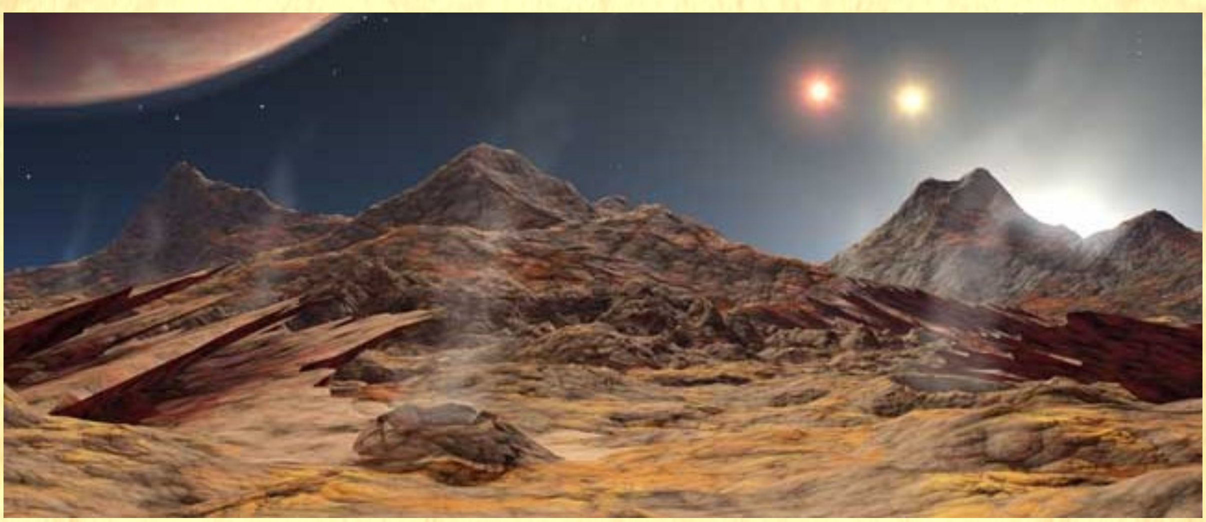
100 - ( Cryosphere x10) = Mean Temperature in degrees F.

Mean Temperature +20 = Mean High Temp.
Mean Temperature -20 = Mean low Temp.

**9. Determine General Climate.**
Habitable worlds only

Consider things like Amount of Cryosphere, Humidity, Hydrosphere. These are suggestions, you can be creative.
Below are some suggestions..

| Cryosphere | Hydrosphere | Humidity | Possible Climate |
|---|---|---|---|
| Low | Low | Low | Hot Desert |
| High | Low | Low | Cold Desert |
| Low | Moderate + | High | Tropical |
| Moderate | Moderate | Moderate | Temperate |
| Low | Moderate | Moderate | Warm Temperate |
| High | Moderate | Moderate | Cool Temperate |
| High | Moderate | Moderate | Arctic |
| Low | Moderate | Moderate | Savannah |
| Low | High | High | Jungle |
| Moderate | High | High | Cool Rainforests |



## 10. Optional: Determine Planetary Mineral Survey. Non Gas Giants only

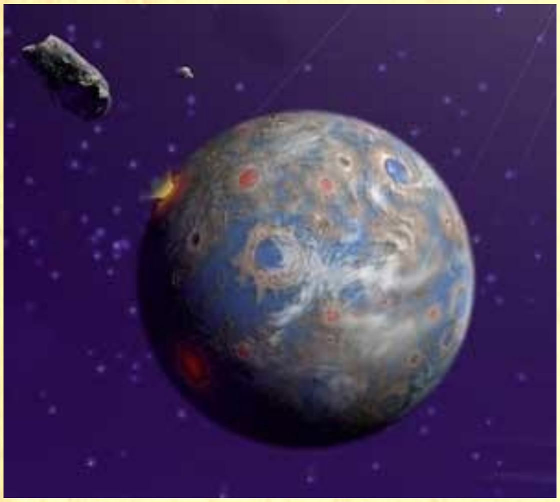
This amount reflects the general abundance of these on the world in question.
Roll 1d10 for each Consult modifiers. Less than 0 equals 0. Greater than 9 equals 9. Record on Planetary Data Sheet.

| Planetary Mineral Survey | Roll | Modifiers |
|---|---|---|
| **Minerals** | 1d10 +3 | Ice world -4 |
| **Common Metals** | 1d10 +1 | Ice world -6, Dirty Snowball –4 |
| **Rare Metals** | 1d10 –2 | Ice world -8, Dirty Snowball –6 |
| **Industrial Crystals** | 1d10 | Ice world -5, Dirty Snowball –3 |
| **Gemstones** | 1d10 –4 | Ice world -4, Dirty Snowball –2 |
| **Radioactives** | 1d10 –4 | Ice world -3 |

**The above numbers** multiplied by 10 represent the percentage chances of locating minerals and metals on a planet. A world with an 8 rating in common metals would have an 80% chance of a survey finding a vein of commercially valuable metals. Such a planet would qualify as a potentially very rich mining world, particularly if the other ratings were also good.

When used in a casual survey by the players the rating x10 should be used as a straight roll. When actively being searched for in order to pinpoint the vein or source the rating x10 should be added as a modifier to the relevant skill being used.

**Asteroid fields and belts** should also have these ratings, in which case it applies to the entire belt. Thankfully you don't have to roll for each individual asteroid unless you want to have a special case asteroid or two.



**Industrial minerals** are geological materials which are mined for their commercial value. They are used in their natural state or after beneficiation either as raw materials or as additives in a wide range of applications. Typical examples of industrial rocks and minerals are limestone, clays, sand, gravel, diatomite, kaolin, benton ite, silica, barite, gypsum, and talc.

**Common Metals** are basic metals used in industry and mined for their industrial value. Examples are nickel, copper, iron, lead, cobalt and others.

**Rare Metals** The best-known rare metals are the coinage metals gold and silver. While both have industrial uses, they are better known for their uses in art, jewelry and coinage. Other precious metals include the platinum group metals ruthenium, rhodium, palladium, osmium, iridium, and platinum.

**Industrial Crystals** are natural or synthetic crystals such as Silicon, Aluminum Oxide, Polycrystalline Ceramic Substrates and others valued for their use as semiconductors, optical crystals, laser crystals, and many other uses.

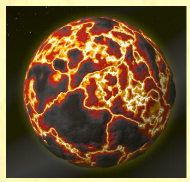
**Gemstones** are minerals or crystals valued not for their industrial use, but for their beauty or rarity. Examples are Diamond, Ruby, Amethyst, Jasper, Obsidian and others.

**Radioactives** are mined for their value in industry, medicine, as fuel or in weapons. For the most part, minerals that contain potassium (K), uranium (U), and thorium (Th) are radioactive. Other examples are: Osmium, Samarium, Tellurium, and Vanadium.

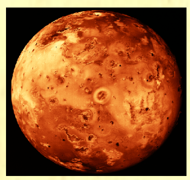
# Planetary Descriptions

**Asteroid Belt:**
This orbit contains very small rocky or metallic objects smaller than a mesoplanet.

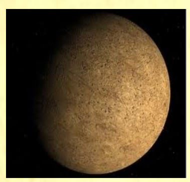
**Protoplanet:**
A world newly formed from the dust disk around young stars. Very hot world. Partially to completely molten surface.  A world like this could exist in an older system, formed from the debris of an earlier planetary cataclysm.



**Geo-Active:**
Often a young planet just emerging from it's proto-planet stage and  quite active geologically. The Planet's intense internal heat could also be from a highly radioactive core or extreme tidal forces.



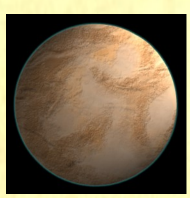
**Mesoplanet:**
Also known as dwarf planets. Small rocky or icy bodies such as The Moon, Pluto or Ceres.



**Small Terrestrial:**
A small rocky world, perhaps with a small metallic core, larger than a mesoplanet. May have a thin to tenuous atmosphere.

**Terrestrial,  Hostile:**
A larger rocky world, often with a metallic core. Unfit for life as we know it due to any number of reasons such as lack of, or poisonous atmosphere, radiation, etc. Many Dead Worlds fall in this category.

**Terrestrial , Desert:**
A world capable of supporting life. Conditions over all are arid. Primary terrain is hot or cold desert although conditions may be better toward the poles.



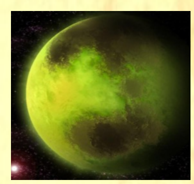
**Terrestrial , Glaciated:**
A world capable of supporting life trapped in an ice age. Conditions over all are cold. Primary terrain is ice or permafrost. May be warmer near the equator.

**Terrestrial , Marginal:**
A world barely capable of supporting life. Often found with thin atmospheres and little water. Primary terrain is often hot or frozen desert. May support primitive eco-systems.

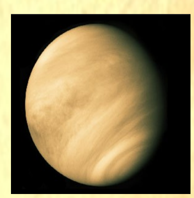
**Terrestrial , Oceanic:**
A world capable of supporting life. The surface of this world is covered with water, perhaps with some scattered islands.

**Terrestrial , Paradise:**
An earthlike world capable of supporting life. Numerous biomes support a profound assortment of flora and animal life.

**Terrestrial , Reducing:**
A world not capable of supporting life as we know it. Chlorine, Fluorine, and other reactive gasses make up the atmosphere and acids make up a majority of the hydrosphere. While lethal to life on earth, these gasses, like oxygen, could support exotic forms of life.



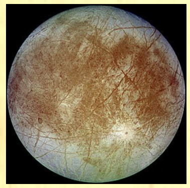
**Terrestrial,  Ultra Hostile:**
Sometimes called "Demon worlds". Like Terrestrial Hostile, but much more hellish.  Unfit for life as we know it due to any number of reasons. Often found with dense atmospheres of smothering, poisonous gasses, extreme pressures and temperatures.



**Dirty Snowball:**

A frozen world found at the outer edge of a star system made up of rock and ices of water and carbon dioxide. Unfit for life as we know it.

**Ice world:**



A frozen world found at the outer edge of a star system made of ices of water and carbon dioxide. Tidal forces or heat from a small rocky core may heat the ice below the miles deep icy surface resulting in great sub -surface oceans. These oceans could possibly be teeming with life that has evolved in conditions much like our deep seas.

**Chthonian:**

Planet resulting from the stripping away of a gas giant's atmosphere often by proximity to a star. Entire planet may be the remnants of a metallic core. In some cases this may have been a carbon core under extreme pressures, Imagine, a diamond planet!

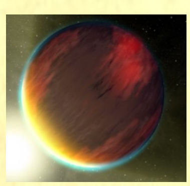
**Exotic:**

A world that does not fit into any other category. . Worlds of pure iron, or solid carbon perhaps found around massive stars. Planets composed of pure water or heavy, dense gasses such as carbon monoxide. Other possibilities include exotic geological structures or atmospheres. Electrically charged worlds with extreme magnetic fields, etc.

**Gas Giants:**

A large planet, sometimes called a Jovian world, that is primarily composed of Hydrogen gas, with various amounts of other gases such as helium and methane.

**Hot Gas Giants:**

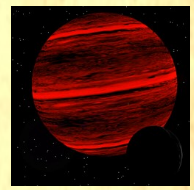


Gas giants found within the inner system orbiting close to their parent star. Hot Gas Giants are thought to form at a distance from the star in the outer system, where the planet can form from rock, ice and gases. The planets then migrate inwards to the sun where they eventually form a stable orbit. The migration typically happens early in the formation of the star system.

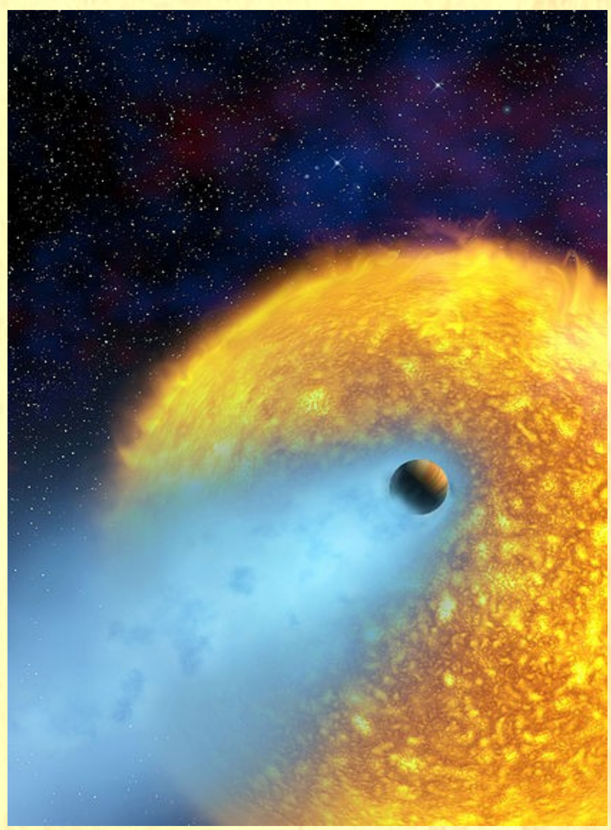
The atmospheres of hot gas giants may contain high amounts of carbon monoxide, alkali metals and silicate clouds.

After some time hot gas giants may get their atmospheres and outer layers stripped away by the solar winds. Their remaining cores may become chthonian planets. Loss of the outermost layers depends on the size and the material of the planet and the distance from the star. In a typical system a gas giant orbiting 0.02 AU around its parent star loses 5-7% of its mass during its lifetime, but orbiting closer than 0.015 AU can mean evaporation of the whole planet except for its core.

**Brown Dwarf:**



sub-stellar objects in which their mass is below that necessary to maintain hydrogen-burning nuclear fusion reactions in their cores, as do stars on the main sequence, but which have fully convective surfaces and interiors, with no chemical differentiation by depth. Brown dwarfs occupy the mass range between that of large gas giant planets and the lowest mass stars; this upper limit is between 75 and 80 Jupiter masses



# Imperium World Classification

**Optional. Determine Imperium Classification**
Use these for inhabited worlds within the Imperium. These descriptions may help you in fleshing out a planet

**1. Determine World Classification**

| 1 d 100 | Imperium World Class | 1 d 100 | Imperium World Class |
|---|---|---|---|
| 1 - 20 | Agri-World | 56 - 60 | Feral World |
| 21 - 40 | Civilized World | 61 - 66 | Feudal World |
| 41 –45 | Developing World | 67 - 77 | Forge World |
| 46 - 50 | Dead World | 78– 96 | Hive World |
| 51 - 55 | Death World | 97 | Quarantined World |
| 56 - 60 | Feral World | 98—100 | Shrine World |

Aside from planet type, the Adeptus Terra also classifies a world by it's primary use for purposes of collecting tithes. These terms apply, with a couple of exceptions, to inhabited Imperial worlds.

**Agri-World :**
An Agri-world is one devoted to food production. The majority of its surface is given over to producing food for other worlds reliant on such imports - the food itself forms part of the planet's required tithe. Governors of such planets are required by the Adeptus Terra to protect the harvest and meet the quotas places on them. Worlds with 850 parts per 1000 of the planet's surface covered with crop cultivation, hydroponics, animal fodder or animal husbandry are classed as Argi-Worlds. The population usually ranges from between 15,000 to 1,000,000 - which is widely spread across the planet.

**Civilized World:**
Of all the types of settlement in the Imperium, civilized worlds are the most common (although the term "civilized" here refers to their urban landscapes rather than to any pretence of social decorum.) On these self-sufficient worlds, the main population centers tend to be large cities or other urban environments that are supported by the planet's own agricultural production. The state of development both technologically and socially varies, but is most commonly around the current Imperial norm. Most adjuncts of the Imperial state will normally have a presence on the planet1. By the classification guidelines, a civilized world has a population from 15,000,000 to 10,000,000,000 and pays tithes between Solutio Extremis and Exactis Tertius.

**Developing Worlds:**
These worlds are split into geographical areas with widely varying levels of advancement and culture. Depending on the prevailing governments, these might be countries, states, power blocks or tribal homelands. It may be the case that higher levels of technology and wealth are concentrated around original colonization sites. Other planets might exhibit gross variations in culture due to environment, with areas weak in natural resources being similarly weak

in terms of military power, economic muscle and so on. Some planets preserve a great divide due to ancient tribal taboos, religious notions or plain old-fashioned habit. A great many worlds of the Imperium fit into this broad category, but no two are alike in the way they realize these divides.

**Dead Worlds:**
A Dead World is an airless and completely sterile world, totally devoid of an atmosphere, ecosystem and native natural life, and unsuitable for supporting any. With the possible exception of Imperial facilities such as Research Stations based on the planet, its population is otherwise nonexistent.
Most such planets have always been dead worlds; others were originally habitable worlds, reduced to dead world status through apocalyptic events, such as exterminatus, Tyranid consumption and destructive internecine war.

**Death World:**
A death world is a planet in which the native flora and fauna has evolved into naturally aggressive and dangerous forms. These eco-systems are finely balanced between continual destruction and lightning-fast reproduction. Death worlds take many forms, ranging from jungle-covered hell-holes with carnivorous plants and animals to barren, volcanic wastelands racked by ion storms.
Humans can, and do, live on these worlds, but it is a never-ending struggle. On many death worlds it is as if the entire bio-mass of the planet were consciously motivated against human settlement - concentrating forces against intruders to destroy them. Death worlds with human settlements or colonies can have populations of 1,000 to 15,000,000.

**Feral World:**
These worlds are populated by tribal peoples largely living without the assistance of maintained technology. This may be due to a failed colonization project, religious preferences, cultural choice, environment or some other reason. They may be aware of the Imperium in some fashion but are unlikely to know much more than something about a large group of distant people living in the stars. These planets are frequently unsuitable for later colonization, either due to the circumstances which drove the natives feral or because the natives themselves actively resist new people settling on their lands. People of feral worlds can range widely in culture, from Grox-hunting tribes of ancestor worshippers to wild-eyed, post-apocalyptic road warriors, fighting endlessly amongst the toxic, sand-strewn ruins of their civilization.

**Feudal World:**
These planets are populated by folk who have lost access to all but the most basic of technologies. Farming, simple machines such as pulleys, windmills and the like are known, but propelled flight, automatic weaponry and even powered vehicles are likely to be rare or non-existent. These worlds are often said to be the most politically harmonious of all the planets of the Imperium, because their peoples know their place.

**Forge World:**
Much of a forge world is like an immense factory, with industrial complexes soaring into the sky and mine workings burrowing deep into the crust. Forge worlds build great numbers of complex machines, like tanks or spacecraft parts. They are ruled by the Adeptus Mechanicus, whose training and research facilities are located there, along with the grand cathedrals to their deity, the Omnissiah, in which the Archmagi of the Tech-Priests enact the grandest, most complex rituals to honor the Machine God. The Adeptus Mechanicus' fleets, its tech-guard armies and, most formidably of all, the Titan Legions, are also all based on forge worlds. The forge worlds are sovereign ground and the Adeptus Mechanicus is loath to allow anyone on their surface other than Tech-Priests and the legions of menials who serve them

**Hive World:**
There are thousands of Hive Worlds in the Imperium. Most consist of various enclosed Hive cities or Hive clusters surrounded by wasteland, jungle, ice, plains, etc. In the most extreme examples the Hive World has developed beyond the point of separate Hive clusters to where the planet's surface is completely urbanized with hundreds of stacked layers of arcologies, covering the entirety of the planet. Holy Terra is an example of this "city-planet".
Populations are enormous, and almost all food needs to be imported. A Hive World rendered temporarily inaccessible through Warp space will suffer a devastating famine within a very short space of time. .
Billions of people can live crowded together in a single Hive-city.
In common with most other Imperial worlds, Hive World society has distinct classes, with a ruling class and a working class. Invariably the lower classes inhabit the lower and more decayed and polluted levels of the Hive.
The sheer numbers of workers in a Hive makes them hard to control. Gangs grow up and control sections, fighting among themselves and millions subsist on scraps. Further up power reaches the ancient lighting system, while even further up, air circulation systems clean the air for those rich enough to afford it. It is a hierarchical system, and a ruthless one, but given suf-

ficient forces to keep the populace down, it is a very efficient way of housing billions of people. If each person had a house on the ground, the entire planet would be overrun with living quarters and no room for production facilities.

Hive Worlds are important due to their output. They don't reach anywhere near the production of a Forge World, but the number of workers give out a huge quantity of materials. Hive Worlders, being just as brutal and savage as those on Feral Worlds also provide some of the best fighting material to the Imperium.

**Quarantined Worlds:**

The existence of these planets is rarely made obvious but there are many of them throughout the Imperium. Travel to these worlds is often forbidden except for the most well-informed and heavily armed expeditions, and even then only with a very good reason. Death worlds, alien empires or planets where the creatures of the warp have broken through into realspace are all examples of quarantined worlds, as are planets wracked with plague. Some worlds are quarantined because no one can fathom the origins of what has been found there, be it mysterious artifacts or ancient cities—it is thought better to live in ignorance of what lies on such worlds than risk it becoming a threat.

**Shrine Worlds :**

Sometimes used in conjunction with another world classification, i.e.; Agri-World/Shrine World, these worlds are dominated by religion and acts of devotion. It may be that these places saw the birth of a famous saint or formed the battleground for a particularly important war. Often studded with temples and shrines, these worlds are frequently controlled by the Ecclesiarchy and may form training grounds for members of their Adepta

**War Zones :**

There are a great many worlds in the Imperium that can be classed as war zones. The Imperium is constantly at war and in those wars whole planets can burn. Massive campaigns can envelop dozens of systems and hundreds of worlds, many of which are utterly devastated by orbital bombardments and artillery in planet-spanning battles that last decades. Long-term war zones are hellish places where death comes quickly. The Imperium can field truly immense armies of millions of men, grinding their way across a devastated planet and reducing cities to rubble. Mercenaries flock to such places, hoping to leave soon after with their ships loaded with pay. Deserters and escaped prisoners form bands of pirates, preying on any ships unable to defend themselves or roam the war-torn planets in feral packs stealing and killing. The Administratum sends colonists from overcrowded worlds to populate war-torn worlds after the fighting has ended but the wheels of the Imperium grind slowly and a world can lie devastated for centuries before any effort is made to resettle it. These places can be some of the most ghastly in the Imperium, with ravaged environments, cracked planetary crusts, burnt-out cities and plains covered in the bones of the fallen.

**Xeno World:**

Xeno worlds are non-human and non-Imperial worlds inhabited by alien races. Humanity is just one of many races in the galaxy, but none are so widely distributed or so numerous as humans. Most alien races occupy only a single world or a small group of worlds. The majority of aliens are comparatively primitive, peaceful or powerless, and of little interest to humanity. Only a few alien races are powerful, aggressive and possess technology which rivals that of the Imperium. Of these, the most common are
the Orks, Eldar, Tyranids and Tau.

## Planetary Class Index

| Class | Subclass | Example | Avg. Diameter (1,000 km) | Core | Typical Atmosphere | System zone | Description |
|---|---|---|---|---|---|---|---|
| Empty Orbit | | | | None | None | Any | No world, asteroid or other body present |
| Asteroid Belt | | | < 0.9 | None | None | Any | Very small mall rocky or metallic bodies occupy this orbit |
| Protoplanet | | | 1 to 20 | Molten | Negligible to thick Methane, Hydrocarbons | Any | Very hot world. Partially to completely molten surface. Often a very young and newly formed world found in newly forming star systems. |
| Geo-active | | | 3 to 15 | Rock | Hydrogen compounds, Sulfur compounds | Any | Geologically very active. Intense internal heat, perhaps from highly radioactive core or tidal forces. |
| Mesoplanet | | Luna, Pluto | 0.9 to 5 | Rock, Ice | Negligible to thin Hydrogen, Helium | Any | Also known as dwarf planets. Small rocky or icy bodies. |
| Small Terrestrial | | Mercury | 5 to 9 | Metallic, Rock | Negligible or thin | Any | Small rocky world or moon. Normally geologically inactive. |
| Terrestrial | Hostile | | 9 to 15 | Metallic | None to hostile. Methane, Carbon dioxide. | Any | This world may or may not have once had life. Now, life as we know it is impossible due to any number of reasons |
| | Desert | | 9 to 15 | Metallic, Rock | Oxygen, nitrogen, argon, trace gasses | Bio | Less than 10% hydrosphere. Extremely dry, little to no natural precipitation. Can be habitable. |
| | Glaciated | | 9 to 15 | Metallic, Rock | Oxygen, nitrogen, Trace gasses | Bio | At least 80% cryosphere |
| | Marginal | | 9 to 15 | Metallic, Rock | Carbon dioxide, oxygen, argon, nitrogen | Bio | Barely habitable. Hostile/Primitive ecosystem. |
| | Oceanic | | 9 to 15 | Metallic, Rocky | Oxygen, nitrogen, Trace gasses | Bio | Greater than 90% hydrosphere. |
| | Paradise | Earth | 9 to 15 | Metallic | Oxygen, nitrogen, argon, trace gasses. | Bio | A diversity of biomes. Extensive plant and animal life often flourishes |
| | Reducing | | 9 to 15 | Metallic, Rock | Chlorine, Fluorine, Other reactive gasses. | Inner, Bio | While lethal to life on earth, these gasses, like oxygen, could support exotic forms of life. |
| | Ultra Hostile | Venus | 9 to 15 | Metallic | Thick Carbon dioxide, sulfur compounds, | Inner, Bio | Sometimes called “Demon worlds”. Extreme pressures and temperatures. World uninhabitable to terrestrial life. |
| Dirty Snowball | | Titan | 4 to 10 | Rock | Negligible to thin | Outer | Mix of ice and rock. |
| Ice World | | | 4 to 10 | Ice, Liquid | Negligible to thin | Outer | Icy crust, perhaps liquid beneath. Possible life. |

| Class | Subclass | Example | Avg. Diameter (1,000 km) | Core | Typical Atmosphere | System zone | Description |
|---|---|---|---|---|---|---|---|
| Chthonian | | | 4 to 15 | Metallic | Tenuous to thin | Inner | Planet resulting from the stripping away of a gas giant's atmosphere often by proximity to a star. Entire planet may be metallic. |
| Small Gas giant | | Neptune | 32 to 100 | | Hydrogen, Helium with mix of other gasses. | Any | |
| Gas giant | | Jupiter | 100 to 200 | | Hydrogen, Helium with mix of other gasses. | Any | |
| Gas Supergiant | | | 200 to 300+ | | Hydrogen, Helium with mix of other gasses. | Any | |
| Gas Ultragiant / Brown dwarf | | | 200 to 300+ | | Hydrogen, Helium, lithium with mix of other gasses. | Any | |
| Exotic | | | Any | Any | Any | Any | World that does not fit into any other category. Exotic geological structures or atmosphere. Electrically charged worlds, pulsar worlds, etc. |

**Note:** Any Gas Giant with a diameter of greater than 140 km is a candidate for a brown dwarf if dense enough. or 13 times the mass of Jupiter.

# Star System Data Sheet

System Name | System Location | Page of

## Stellar Data

| | Star Name | Class | Size | Star Type Solitary or Multiple | Biozone Orbits |
|---|---|---|---|---|---|
| Primary Star | | | | | |
| Companion | | | | | |
| Companion | | | | | |

## Orbital Zone Diagram

Not to Scale

Primary Star

0 1 2 3 4 5 6 7 8 9 10 11 12 13

Orbit

| Orbit | A.U.'s | Orbit | A.U.'s |
|---|---|---|---|
| 0 | 0.2 | 7 | 10 |
| 1 | 0.4 | 8 | 19.6 |
| 2 | 0.7 | 9 | 38.8 |
| 3 | 1 | 10 | 77.2 |
| 4 | 1.6 | 11 | 154.0 |
| 5 | 2.8 | 12 | 307.6 |
| **6** | 5.2 | **13** | 614.8 |

Companion

0 1 2 3 4 5 6 7 8 9 10

Orbit

Companion

0 1 2 3 4 5 6 7 8 9 10

Orbit

| Orbit Planet | Orbit Sat | Planet Name | Class | Size |
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| Orbit Planet | Orbit Sat | Planet Name | Class | Size |
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| Orbit Planet | Orbit Sat | Planet Name | Class | Size | Orbit Planet | Orbit Sat | Planet Name | Class | Size |
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Notes:

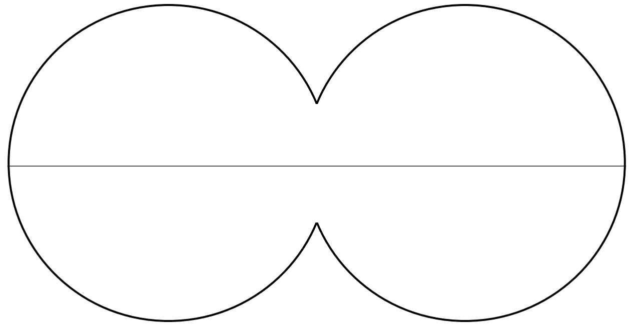
# Planetary Data Sheet

Planet Name | Class | Orbit

Atmosphere | Hydrosphere % | Cryosphere %

Diameter km | Gravity G | Axial Tilt | Volcanism | Tectonic Activity

Land Mass % | Hours in Local Day | Avg. Mean Temp. | Humidity %



Planetary Visual

Surface Area km$^2$

General Climate

Dominant life forms

Satellite Data

Number of Satellites | Type

Mineral Survey

Minerals | Common Metals | Rare Metals | Industrial Crystals | Gemstones | Radioac-tives

Notes / Items of Interest


# Planetary Data Sheet

Planet Name | Class | Orbit

Atmosphere | Hydrosphere % | Cryosphere %

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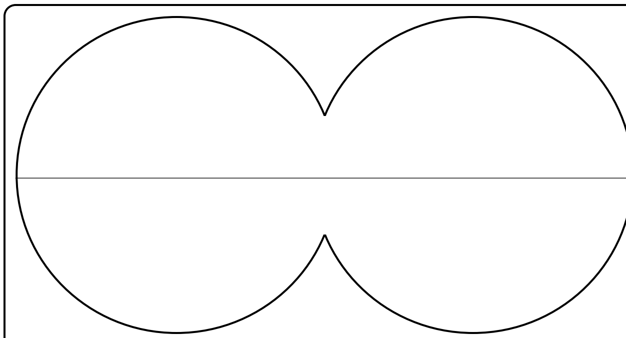


Planetary Visual

Surface Area km$^2$

General Climate

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Satellite Data

Number of Satellites | Type

Mineral Survey

Minerals | Common Metals | Rare Metals | Industrial Crystals | Gemstones | Radioac-tives

Notes / Items of Interest

# Carpe Astarte
# Seize the Stars

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In the darkness that is the 41st millennium only the bravest of souls venture forth from the security of their home worlds to brave the depths of space. Some go into the void for the promise of riches or fame, still others go because of the human desire to explore new worlds.

What will they find?

Now you have the tools in your hands to create a nearly infinite number of unique star systems and planets. Game Masters should find a wealth of information among the tables and descriptions for developing as detailed a star system or planet as they may wish to and ideas for using the information in your game.