**The Galaxy**

* The galaxy is divided up into a random amount of systems (between 25 and 50).
* Each star system has a random amount of planets (between 0 and 5) as well as an asteroid belt.
* Each planet has a random [inexhaustible] amount of exploitable resources (0.2t to 20t for metal and 0.1t to 10t for crystal), which equals raw material production (multiplied by planet industrial level – Level 1 indicates a newly settled planet).

Each planet is randomly determined to be one of three types:

Dead

* Most common planet.
* Toxic atmosphere means food production is unviable.
* Exploitable mineral reserves.
* Solid surface allows colonisation.

Gas giant

* Large, concentrated stocks of harvestable gas.
* Gaseous structure prohibits colonisation.

Terrestrial

* Rarest planet.
* Exploitable mineral reserves.
* Solid surface allows colonisation.
* Can produce consumables [food].

Planets with a certain level of development will automatically begin mining from their asteroid belt – higher industrial means more mining.

**Civilisation**

* Humans start with colonies on 10 – 25 randomly settled planets.
* There will always be one heavily developed / high population terrestrial planet with a shipyard [Earth].
* Each colony has a population and a development level which together determine material consumption.
* Each colony has a development level, which consumes raw materials but in return produces luxury and consumer goods.
* As long as materials are supplied, the development level will gradually increase.
* As long as food is supplied, population will not decrease.
* If consumer goods are provided as well, population will increase.

**Colonisation**

* Once a colony reaches a certain industrialisation level, it can start colonising new planets.
* After the population reaches a certain threshold, a random timer will start and when it expires an available, empty planet will be colonised.
* New colonies are immediately transferred a section of the parent’s population, and start at development level of 1.

**Population**

* Population growth is randomly determined between 0.001% and 0.02% per update (day). If there is not enough food, the population decreases by the same amount.
* Each person consumes 2.12kg of food per day (0.00213t).
* Each planet has a population limit equal to 1 billion \* the development limit.
* If a colony’s population drops below 100, it is abandoned (despawns).

**Colony types**

* Each planetary body has a different type of colony with different statistics:
  + Terrestrial planets have colonies.
    - Development consumption to reach a new level is 5% of the current level for each resource.
    - Maximum development level is 1000.
  + Dead planets have bio-domes.
    - Development consumption to reach a new level is 15% of the current level for each resource.
    - Maximum development level is 750
  + Gas giants have collector arrays.
    - Development consumption to reach a new level is 20% of the current level for each resource.
    - Maximum development level is 250.
    - Can not produce goods.
  + Asteroid belts have asteroid mining networks.
    - Development consumption to reach a new level is 30% of the current level for each resource.
    - Maximum development level is 350.
    - Can not produce goods.
* Each colony has a resource pool which it ‘owns’ and consumes freely as needed, but is also available for sale.
* Each colony has an [effectively] unlimited amount of funds.

**Development**

* Development level is increased as the resources metal plates, electrical components and consumer goods are been consumed at a rate equal to a percentage of the current development level each.
* Each new development level takes a number of years equal to the current level.
* Each update (day), resources are consumed equal to:
  + Consumption index \* 30 / development level.
* Each update (day), if full resources are consumed, development progress is added equal to:
  + 1 / (360 \* development level).
* If the full amount of resources are not consumed in one update, then the development level decreases by the same amount it would otherwise increase by.
* Development level can not fall below 1.
* Terrestrial and dead planets automatically get a shipyard when their development level reaches 5 (15 years of constant development since colonisation).

**Resource Requirements**

* Each colony has a requirement index for each resource. Defaulting to 1, a higher index means more of it is required and increases the price for the resource at that trade post (lower acts in reverse, but can not go below 0).
* Food requirement index is equal to:
  + Amount of food eaten per update / amount of food produced per update.

Planet update algorithm:

1. Update list of trade options relative to this planet [given that you buy a resource at that location and sell at this one].
2. Store each trade option with the distance to that location, and sort them by sale profit.