The progression is calculated through several formulas, the first one is used when there is an increase in population.

The life quality is a number from 0 – 100, so it is divided by a 100 so it is a number between 0 and 1. It is subtracted minus a half, so when that number is lower than half, the progression can decrease or increase depending on life quality. It then also is multiplied with the previous population, and divided by a number that came from experimentation.

A cap is placed on the progression, so that if the calculated progression is more than progression/1.5, it is capped at that value.

Otherwise when the population is too big, as in bigger than one million, the population to calculate the progression, is capped at one million.

The life quality is a number from 0 – 100, so it is divided by a 100 so it is a number between 0 and 1. It is subtracted minus a half, so when that number is lower than half, the progression can decrease or increase depending on life quality. 10 and 500000 are just factors to calculate it, derived from experimentation. Three techs are also factored in:

* Engineering, since this is important to progression.
* Architecture: You need to design your space ship
* Medicine: You need to know how the human body works in space

Agriculture is not involved, because farming potato’s and building a space ship are two entirely different things.

To calculate the progression, multiple phases of the population are counted in. If the population is under 5000, the formula below is used:

Life quality is a number from 0 – 100, so it is divided by a 100 so it is a number between 0 and 1. It is subtracted minus a half, so when that number is lower than half, the population can decrease or increase depending on life quality. It then also is depending on an extra factor, which was derived from experimentation, and the total population.

Otherwise, when the population is above one billion, the formula below is used.

And when the population is in between the following formula is used:

Life quality is a number from 0 – 100, so it is divided by a 100 so it is a number between 0 and 1. It is subtracted minus a half, so when that number is lower than half, the population can decrease or increase depending on life quality. This number is then multiplied by one billion divided by 1.3, which is derived from experimentation. When the number is smaller than one billion, it will use the current population.

If an event happens, it needs to be able to intervene with the population. For this the population is lastly multiplied by its multiplier.

The life quality is calculated by the following formula, when the temperature is in between -25°C and 50°C.

Life quality is a number between 0 and 100, dependant on 4 factors:

* Engineering: this is a number from 0 to 30, and so is divided by 30. It also counts for 5% of the life quality, so it is multiplied with 0.05 and 100 to make it a number between 0 and 5. This all together is the same as engineering/6.
* Usable landmass: this is the area of usable landmass. This divided by landmass, gives a percentage of the usable landmass. This multiplied with 35 gives a number between 0 and 35, and represents 35% of the life quality.
* Calculated temperature: This is something special. Since the temperature for an organism needs to be between -25 °C and 50 °C, it can be seen as a parabola. This with a top of 1.

When the temperature is either below -25 or above 50, it will be decreased more if the temperature is more extreme.

Because the temperature is not ideal for organisms to live, it is again punished by multiplying it with a factor depending on the temperature. If it is below -25°C, it is calculated like below:

When it is above 50, it is used like below.

The landmass is calculated by the following formulas, the first one is a temporary variable, that is between 0 and 1, and uses both the tech points of architecture and agriculture.

After that, the usable landmass is determined by the following formula.

calculated usable landmass = landmass multiplier \*landmass \* (tech variable \* 0.8 + 0.2)

The temperature is determined, depending on if it is in the Goldilocks distance, or not. If it is, it goes like follows:

These values are all experimental, to become a realistic value.

If it is not in the goldilocks distance, it is calculated like below.

Const is either -1, or 0.5, depending on if it is before or after the Goldilocks’zone.

The atmosphere is simply calculated by the original atmosphere, and multiplied with the multiplier.  
 atmosphere **=** atmosphere \* atmosphere multiplier