

The Nibirum Planet Calculator Chart

This can be used to help visualise where the various planets of the Nibirum Solar System are at any given point in time, and thus work out where in the sky they may be seen from Nibirum itself.

The Calculator Chart should be printed-off for best use. For added durability, it could be fixed to good-quality stiff cardboard and protected further with a covering of clear, self-adhesive, film, while the Markers, once similarly card-backed, can be cut out and placed on their respective tracks to show which is where and when. A ruler or other straight-edge can be helpful in working out any important alignments more precisely.

The System's Sun is shown in the centre of the Chart. Its actual location is in the very centre of this disc image, from where all the radial track lines originate. The concentric tracks surrounding Sun are also central to that point, and represent the various planetary orbits as if looking down onto them from their northern sides. Note that the images and tracks are representational only, and are not to-scale.

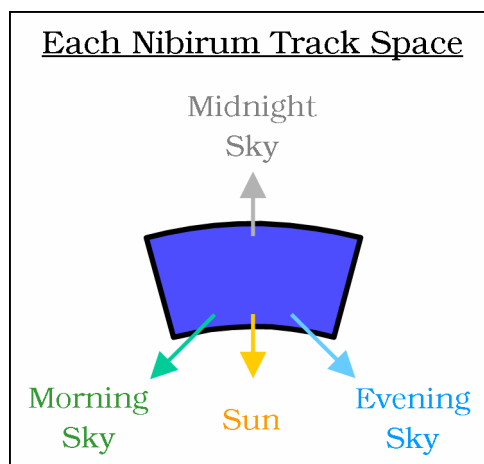
Each track contains a variable quantity of numbered spaces of different sizes. Every track space represents 30 Nibirran days. Each track is shaded and labelled as a reminder of which planet is which, with the Markers comparably colour-coded. The number labels can be used to allow the random placement of specific planet markers when initially setting-up the Chart for RPG use. Two large arrows, to the upper left and lower right, show the direction of orbital motion for all the planets.

Degree labels around the Chart's periphery indicate the four cardinal directions to match with those on the Nibirum Sky Maps. They relate to where in the sky the Sun is as seen from Nibirum at those times. When the Sun is at the northern spring equinox point for Nibirum, we can identify this as being the 0° point. At that stage, Nibirum would be on the line between spaces 12 & 1 on its track (easy to find, as all the "1" track spaces have been deliberately lined-up on the Chart's centre-right side). At 90°, for Nibirum, the Sun has reached its most northerly point at the northern summer solstice. Nibirum then lies on the dividing line between track spaces 3 & 4. The 180° and 270° labels subsequently mark respectively the northern autumn equinox, and winter solstice points, when Nibirum would be on the dividing lines between its track spaces 6 & 7, and 9 & 10.

Although the track-space sizes are about the best compromise possible to retain equal time periods across all the planet orbits, this does make the spaces on the outermost track, for Trickster - perhaps appropriately - the most difficult to use, unless the Trickster Marker is made to stand upright on its edge, instead of lying flat on the Chart.

One extra Marker shows the Dawn Heralds, the group of small comets co-orbital with Nibirum, but 60° ahead of that planet. This Marker is always placed 2 spaces ahead of Nibirum on the Nibirum track. It moves from there at an identical speed to the planet. So, if Nibirum is in space 12, the Dawn Heralds must be in space 2, and so forth.

After setting-up the Chart and Markers, the sky-location for any space object from Nibirum can be determined approximately by comparing its location to that of the current track space Nibirum occupies, using the following diagram, which applies to any Nibirum track space.



For greater precision, either a true scale diagram, or calculations using the physical parameters described already elsewhere for the planets in the Nibirran Solar System would be needed. This though would be probably only of importance where a close planetary conjunction was involved, either planet to planet, or planet to bright star, or one of Nibirum's moons, and then most likely because of a specific RPG storyline requirement.

While most of the planets and the Sun lie on the line of the ecliptic as seen from Nibirum, two of the planets have orbits slightly inclined to that line, Firebird (inclination to the ecliptic of 3°) and Yellowstar (inclination = 2°). This means both those planets will cross the ecliptic line twice each orbit, at points diametrically opposite one another, once north to south, the other south to north, at their nodes, just like Nibirum's moons do (see *The Moons of Nibirum* PDF file for more information). Each planet would be then at its greatest separation from the ecliptic (2° or 3° above or below that line) when in the spaces 90° away from their respective nodes. The placement of these nodes can be left for those GMs preferring such extra detail, along with whether they also regress, and at what speed if so, in a similar fashion to the Nibirran lunar orbit nodes.

To assist in estimating object positions more exactly within a given track space, the angular size for each 30-day-long space per track is as follows: Firebird = 90°; Daystar = 72°; Nibirum = 30°; Yellowstar = 24°; Goldenstar = 10°; Timekeeper = 6.92°; and Trickster = 3.75°.