ANDREW RADER

# STELLAR HORIZONS

Rules & Scenarios

"Earth is just too small and fragile a basket for the human race to keep all its eggs in."

-Robert Heinlein

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# STELLAR HORIZONS

STELLAR HORIZONS is a "build your own space program" game for 2-7 players where you will lead one of seven Earth factions in a race to develop our solar system through exploration, expansion, and potentially, conflict. It's a plausible representation of humanity's first steps toward the stars between 2030 and 2169, with each turn representing one year of time. Each faction (representing a nation or group of nations on Earth) has unique advantages and disadvantages, along with its own ship designs and bases. You are in charge of your faction's space program, although you will have some influence over your faction's politics on Earth as space development becomes more important.

Game play takes place on tiles representing planets, dwarf planets, asteroids, moons, and other worlds, arranged on tiles placed outwards from the Sun, forming the solar system as a series of travel hubs. As you explore with robots and humans, you'll gather valuable experience that will bolster your physics, engineering, and biology research. Exploration will also help you uncover what valuable resources you might obtain, and, in some instances, might lead to the discovery of past or existing extraterrestrial life.

STELLAR HORIZONS begins with our current level of technology, bridging the gap to an advanced *Star Trek* future, relying only on technologies possible within our current understanding of the laws of physics. Space exploration and research contribute to your technological advancement. With each breakthrough, you'll be able to build bigger and better ships and bases, and travel faster and farther out into the solar system and beyond. As you expand alongside your rivals, you might choose to challenge their advancement with embargoes, blockades, or direct conflict as a last resort.

The game includes co-operative and competitive scenarios lasting an hour or more, and a grand campaign which can be played in a day or over a weekend. Campaign victory is based on points earned for exploration, technology, space settlements, missions beyond our solar system to Alpha Centauri, terraforming, and the development of an interstellar colonization vessel.

# 1.0 GAME COMPONENTS

**STELLAR HORIZONS** consists of:

- 2 Rulebooks
- 20 Punchboards containing:
  - 231 Units - 33 for each faction
  - 1 Invader
  - 30 Mission markers
  - 2 Turn markers - 1 Year and 1 Decade
  - 8 Asteroid markers
  - 12 Signs of Life/Life markers
  - 12 Pirate markers
  - 15 Helio Transfer markers
  - 27 Trade markers
  - 90 Numbers - numbered 1 through 9
  - 182 Faction markers
  - 30 Damage markers
  - 100 Settlement markers
  - 130 Installation markers - 21 each of Supply Stations, Spaceports, Mining Stations, Refineries, and Research Stations, and 25 Defense Works
  - 40 Politics markers
  - 40 Victory Point markers
  - 108 Technology Number markers for Engineering, Physics, and Biology - in denomonations of 1, 2, 3, and 5
  - 21 Technology Bank markers - 3 for each Faction
  - 2 Large Planet tiles - eg. Jupiter
  - 2 Medium Planet tiles - eg. Neptune
  - 8 Small Planet tiles - eg. Earth and Alpha Centauri
  - 24 Satellite/Moon tiles - eg. Hygeia-Palas and Triton
  - 1 Deep Space Astronomy tile
  - 54 World Cards
  - 129 Currency Coins in denominations of 1, 2, 5, 10, and 25 Billions
  - 393 Resource markers - 131 each of Ore, Fuel, and Supplies in denominations of 1, 2, 5, 10, and 25
- 4 Punchboards containing the 7 Player Faction boards and the Policy Tree
- 1 Punchboard containing the Tracks board
- 1 Technology Tree on a mounted board
- 7 Player Aids containing the various charts and tables needed to play and the Solar System and Space diagram
- 7 Rule 3 summary booklets
- 1 Percentile die and 3 ten-sided dice
- 1 Box and Lid set

This rulebook makes frequent reference to other game components, so it would be helpful to have these handy. The end of this rulebook includes a description of the campaign (4.0), scenarios (6.0), and examples of play (8.0). New players might find it easiest to look over some examples with the game components in front of them before starting to play. Note that the rules make frequent references to **CV**s (Crew Vehicles), **RE**s (Robotic Explorers), and **LV**s (Launch Vehicles), all described in 2.6.

# 2.0 CONCEPTS AND FEATURES

This section explains **STELLAR HORIZONS'** concepts and features.

## 2.1 NUMBERS AND DICE

Ten sided dice are used for all rolls. Some rolls require two dice to be rolled at the same time as percentiles, where the double digit die (e.g., '10') represents the tens and the single digit die represents the ones. A roll of '0' is a '10' unless rolling percentiles, where it is a '0'. Whenever a success rate is given, you must roll that number or lower. For example, if you succeed on a '5', you need to roll 5 or less. When rolling percentiles, if you have a 2% chance of an event, the event occurs on a '00' on the percentile dice, and a '1' or a '2' on the regular dice (1% or 2%). '000' is 100.

When performing any calculations, perform all multiplication, division, halving, or doubling before additions or subtractions. Retain all numbers but round the final result normally (e.g., 2.5 rounds up to 3 while 2.49 rounds down to 2).

## 2.2 SOLAR SYSTEM TILES

The solar system tiles depict a top-down view of our solar system. **At the start of the game, you'll set up the planet tiles as shown on the Solar System chart. Once the game is set up it should look similar to the diagram on page 4.**

Planets, dwarf planets, large moons, groups of smaller moons, asteroids, and some other heavenly bodies (collectively called 'worlds') occupy solar system tiles. These tiles show pertinent information about worlds of the solar system, including production modifiers, base construction costs, chances for random events, the probability of finding life, and much more. Each world has an exploration value in a color-coded tech field (e.g., 4 Engineering for the Moon).

**See World and Satellite Tile diagram on page 5.**

The larger solar system tiles have a series of numbers ranging from 1-6 (shown in blue). These tiles form the central hubs of planetary systems. During movement, you'll be able to transfer between these planetary system hubs, or move between the 'Flyby' box, world orbits, to adjacent moon tiles, and more (see 3.3).
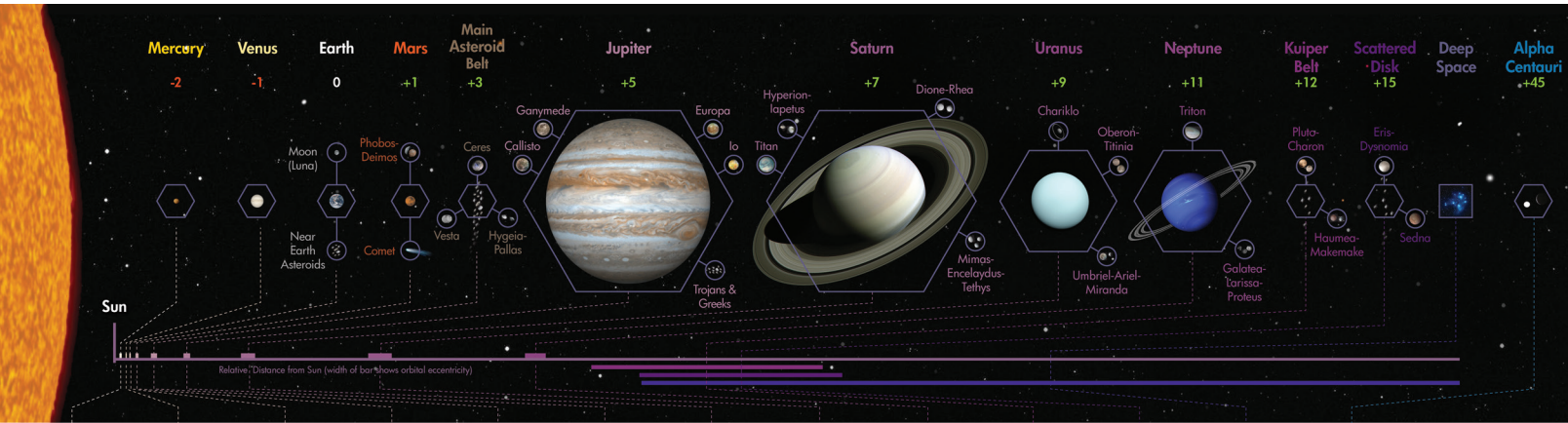
### 2.2.1 World Cards

World cards, drawn randomly and placed face-up in world boxes, describe features, determine production (3.1.4), and modify exploration (3.5). World cards must share <u>at least one</u> descriptor with a world to be eligible to occupy its world box (e.g., World Type = rocky, icy, minimal gravity).

**See World Card diagram on page 4.**

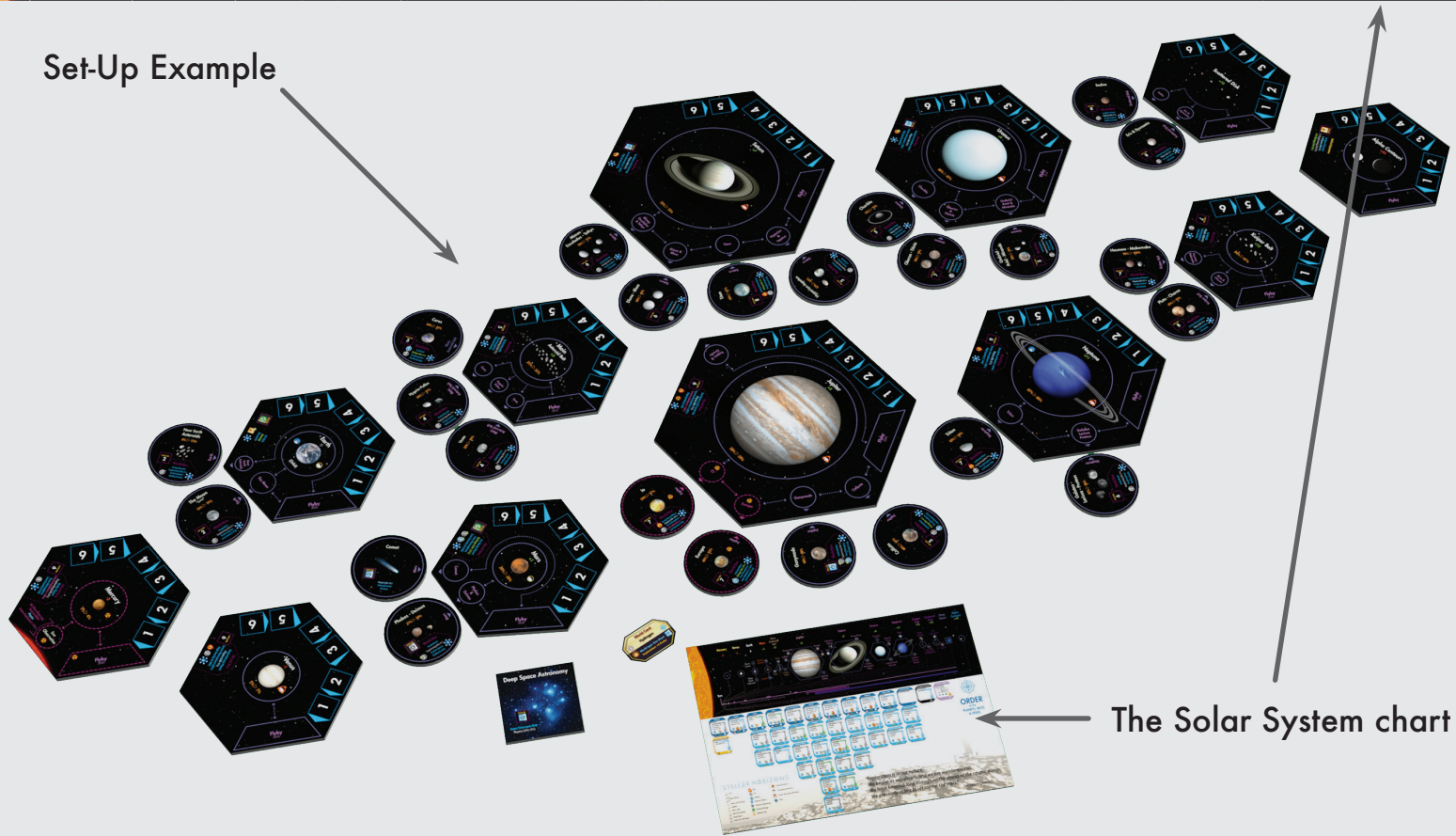No worlds have world cards at the start of the game. When a player depletes a world (see 3.5.3), they draw a world card from the deck. If the depletion achieved using a robotic explorer (**RE**) equipped with a spectrometer, instead draw 2 world cards and choose one to use. Discard the card if it isn't eligible for that world (don't redraw). If it is eligible, the exploring player can choose to

# STELLAR HORIZONS



| Mercury | Venus | Earth | Mars | Main Asteroid Belt | Jupiter | Saturn | Uranus | Neptune | Kuiper Belt | Scattered Disk | Deep Space | Alpha Centauri |
|---------|-------|-------|------|-------------------|---------|--------|--------|---------|-------------|----------------|------------|---------------|
| -2 | -1 | 0 | +1 | +3 | +5 | +7 | +9 | +11 | +12 | +15 | | +45 |

## Set-Up Example

The Solar System chart

## Example World Card



Name

Ore Production

Supplies Production

The World type this card can be played on

**World Card**

**Helium-3**

1

1

**World Type:**
**Gas Giant**

6

6

**Exploration: +6 Probe**

Fuel Production

Physics Research
(does not affect exploration)

Exploration Modifier

# World & Satellite Tiles



**+** Plus sign adds additional Resources to production from world card

**3** Ore

**4** Supplies

**2** Fuel

Severe Radiation

Launch Vehicle required to leave Earth

Re-entry (Off limits to ships larger than CV-4)

Severe atmosphere (Pressure shells technology required to land here)

**5** Research Physics

**5** Research Engineering

**5** Research Biology

**5** Research Any

**5** Base Construction Cost

**World Resources, Information & Exploration Value Box**
*See also World Box Card Slot below*

**World Card**
*Modifies Resource Production*

**Heliocentric Transfer Track**

*World Name*
*Location relative to Earth (+/-)*
*Planetary Restrictions Event Probabilities*

**World Tile**

**Satellite Connectors**

**Flyby Box**
*(2050 = Decade NPF bases, pirates & asteroids start to appear)*

*No World Box Card Slot*

**Satellite Disks**

**World Card Slot**

**World Box Card Slot**
*Dotted line allows placement of World Card*
*No Dotted line, no World Card*

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place it in the world box (replacing any existing card that was previously in the box), or return it to the deck (even leaving the world with no card).

On the last depletion of a world that doesn't yet have a world card, keep drawing until you draw one that is eligible (and you must apply an eligible one if able). If there are no eligible world cards left in the deck, the world will never get a world card.

## 2.3 MARKERS

Cash, resources, facilities, and most other markers not considered to be counter-limited. If you run out, you can substitute other markers or otherwise record the status. Ships, bases, tech markers, trade markers, pirates, asteroids, and missions are limited by their counters.

### 2.3.1 Resources

Resources are produced at worlds. There are 3 kinds of resources in *STELLAR HORIZONS*:

- Ore (**ORE**), **3**
- Fuel (**FUEL**), **2** and
- Supplies (**SUP**) **4** .

Resources represent the equipment and materials that form the basis of a space economy. Bases can spend resources, and have an unlimited stockpile capacity (see **Faction Sheets**). Ships can't spend resources directly but can sometimes harvest and transport them.

### 2.3.2 Cash (B)

Cash (in Billions, **$B**) is produced on Earth and can be earned from selling resources and through trade. Cash can be used anywhere (it does not need to be transported).

On Earth, you can always buy any type of resource for **$1B** each and sell 2 resources of any type for **$1B**. This means that you generally don't need to store resources on Earth because you can always buy them when you need them; however, you can store them if you have a surplus that you transported back to Earth.



> **Stellar Info:** *A single 1 km diameter M-type asteroid could yield more than double Earth's entire yearly iron and nickel production.*
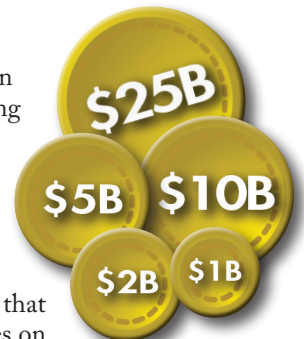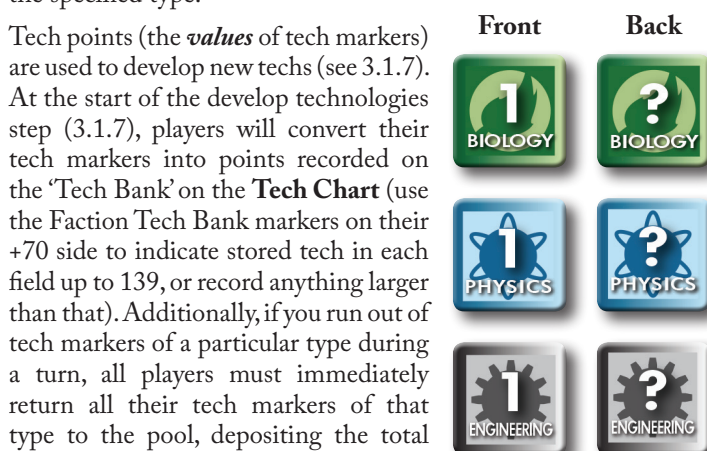
### 2.3.3 Tech Markers & Tech Points

Tech markers, earned through exploration (3.5), indicate a number of tech points in physics, engineering, or biology. At the start of the game, divide the markers into pools based on type. Whenever you draw a tech marker, you pick one randomly from the pool of the specified type.

| Front | Back |
|-------|------|

Tech points (the *values* of tech markers) are used to develop new techs (see 3.1.7). At the start of the develop technologies step (3.1.7), players will convert their tech markers into points recorded on the 'Tech Bank' on the **Tech Chart** (use the Faction Tech Bank markers on their +70 side to indicate stored tech in each field up to 139, or record anything larger than that). Additionally, if you run out of tech markers of a particular type during a turn, all players must immediately return all their tech markers of that type to the pool, depositing the total returned value to their bank.

When you spend tech points, you'll spend them from your tech bank. At the end of each technology step (3.1.7), all players will halve any remaining tech points in their bank.

| Front | Back | TECHNOLOGY TRACK |
|-------|------|------------------|

### 2.3.4 Politics Markers

At the start of the economic phase, each player will draw politics markers, and you will also earn them throughout the game. Some politics markers are printed with a 2 or 5. These are merely to reduce the number of markers you need to hold, but you can make change and always draw one at a time.

You can spend politics markers to:

- Modify your initiative roll by +10% per marker spent (all must be spent before rolling; see 3.1.2);
- Add 2 tech points of any single type to your tech bank (2.3.3) (3 with *Unified space diplomacy*; see **Policy Chart**);

- Convert a marker to **$1B** cash at any time.
- Spend 2 markers to return your unearned mission to the pool and re-draw at any time (see 2.3.5);
- Spend 4 markers to buy a victory marker (see 2.3.7);
- Attempt to increase or decrease your foreign relations with another faction during the diplomacy step (see **Faction Sheets** & 3.1.3).

At the end of each technology step (3.1.7), you'll discard any remaining politics markers. However, you can convert them to cash or tech points instead.

### 2.3.5 Missions

Missions are worth victory points at the end of the game based on the number indicated on them, and also bonus cash each turn during production (3.1.4). At the start of the game, form a pool of all the mission markers without a date. Add dated missions to the pool (e.g., Eris 2060) at the start of the indicated year. Each player draws one random mission marker from the pool (*option: when you draw your first mission, draw two and pick one to keep*). Only that player can complete this mission. Also draw one random mission marker which any player can complete (the common mission; turned face-up for all to see).

If a player achieves a depletion (3.5.3) at a world named either on their mission marker or on the common mission, that player completes that mission. Note that some missions require that the depletion be achieved using a crew vehicle (**CV**), and missions may never be earned using **Space Telescopes**. Completing a mission yields a free politics marker (in addition to a politics marker for the depletion itself, see 3.5.3). When a mission is completed, draw a new unearned mission marker from the pool to replace the completed one.

For missions you've completed, keep the mission marker for the rest of the game and earn an extra **$1B** during the production step (3.1.4) for each. However, you may not keep more mission markers than the current decade of the game (1 for 2030, 2 for 2040, etc.). When you complete a mission that you can't keep, earn the extra politics marker and also one victory marker, but return one of your missions to the pool (you could return a different mission to the pool). If there is ever an unearned mission marker for a world that is fully depleted (to '0' exploration value), remove that mission marker from the game (and draw a replacement if it was the next player or common mission to be earned).

### 2.3.6 Trade Markers

Trade markers indicate what type of resources you can buy from or sell to a base during the trade step (3.6.1). A 'Buy' marker means that you can buy resources from the base; a 'Sell' marker means that you can sell resources to the base. For example, 'Buy **$1B: 2 ORE**' means that you can buy two **ORE** from the base for each **$1B** you spend. 'Sell **1 SUP: $2B**' means that you earn **$2B** per **SUP** you sell.

Bases without trade markers are assigned them from the pool during the economic phase (3.1). When any player trades with a

base, remove its trade marker; the base won't be able to trade again until it gets a new trade marker.



### 2.3.7  Victory Markers

Victory markers are earned throughout the campaign game for certain actions like defeating pirates, harvesting asteroids, and winning battles. Save these up for counting score at the end of the game. Whenever you earn a marker, you always earn one worth a single victory point, but you can trade these in for larger denominations to conserve markers.

## 2.4  THE TECH & POLICY CHARTS

The **Tech Chart** tracks your technological development in three fields (Physics–blue, Engineering–grey, and Biology–green). Techs, purchased during the tech step (3.1.7), improve your ships and yield other benefits. The **Policy Chart** tracks your Policies. These are similar to techs, except that they are developed for free, one per decade (3.1.9).
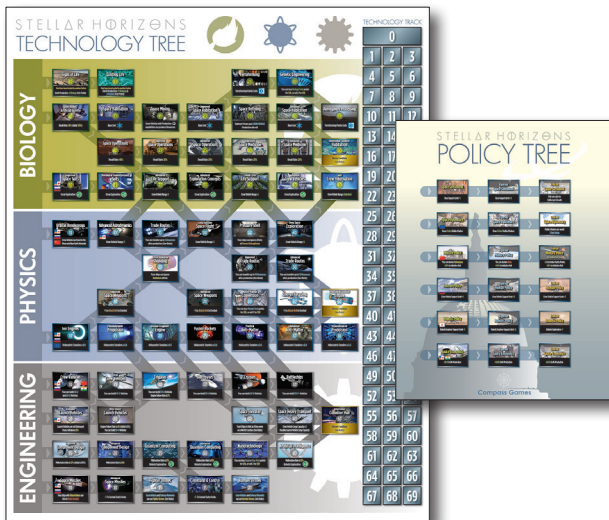


Development proceeds from left to right, with the rightmost projects being the most advanced. In order to develop a tech, you must have previously developed all projects connected to its left. For example, to develop *Advanced life support*, you must have already developed *Space Operations*, *Mechanical counterpressure suit*, and *Advanced astrodynamics* (even in the same turn). If you don't yet have any techs in a particular row, you can only develop the tech on the extreme left side of the chart.

Technology and policy benefits are only cumulative if they aren't connected by a development path of any length. For example, *Vigorous space economics* gives a total of +**\$4B**, not **\$4B** in addition to the **\$2B** for *Space Economics*. However, the +1 to robotic exploration from *Unified robotic policy* is cumulative with the +3 from *Artificial intelligence* because the policy and tech are not connected.

## 2.5  POLITICS AND FOREIGN RELATIONS

Seven globally distributed factions are represented in *STELLAR HORIZONS*. Each faction has characteristics and special abilities based on its historical space achievements and geopolitical situation (see **Faction Sheet**). All seven factions exist in every game, although your interactions with non-player factions ('**NPF**'s) are more limited.

Place one faction marker (flag) for every other faction (even NPF) on your foreign relations track (see **Faction Sheet**; at the start of the game, all in the 'neutral' box). You can try to change your foreign relations during the diplomacy step (3.1.3).



Your foreign relations modify your budget and determine how many resources you can trade with non-player faction bases (e.g., '\$1B/6R' means you would earn an extra **\$1B** and could trade up to 6 resource at that Faction's base, provided it had a trade marker). You also earn an extra politics marker for each alliance you have (see 3.1.1). Relations are always reciprocal: if you have an alliance with another faction, they must also have an alliance with you. Note that this means you can attempt to increase your relations with another player to prevent them from being able to embargo or declare war on you (see 3.1.3). You can also increase your relations with **NPF**s to gain the income and trade benefits (and earn a politics marker for alliances), or decrease them to attack their bases.

If two players have an alliance, they can choose to form fleets and move their ships together (when the later moving player would move). All allies must agree for an allied fleet to move, intercept, or initiate combat. Each ally makes decisions for their own ships and can leave an allied fleet at any time. The ally with the best initiative has precedence for fleet decisions in combat, and still goes first for exploration, trade, etc. Allied fleets can only take offensive action (attack, blockade) against a faction if all allies could do so, but they can always choose to defend together, even against other's allies.

While embargoing another faction, you may:

   i)  blockade their bases (3.4.7),
   ii)  intercept their **LV**s carrying resources (2.6.1), and
   iii)  intercept and search for their **CV**s to initiate combat (3.4.2); however, you must accept surrenders when offered (see 3.4.3), and may not search for ships that are located at bases.

While at war with another player, you can attack their ships and bases. However, all wars in *STELLAR HORIZONS* are considered to be limited, so you must always accept the surrender of bases and can never take any offensive action against a ship or base on Earth or in Earth orbit.

## 2.6 SHIPS

There are three types of player-controlled ships in *STELLAR HORIZONS*: Launch Vehicles (**LV**s), Robotic Explorers (**RE**s; further subdivided into **Probes**, **Space Telescopes**, **Orbiters**, **Flyby**, and **Rovers**), and Crew Vehicles (**CV**s).

### 2.6.1 Launch Vehicles (LVs)

**LV**s are rockets used for launching **RE**s and **CV**s, and transporting resources. Each faction has four types of **LV**s (**LV**-1 to **LV**-4). Techs are required to build **LV**-3s and **LV**-4s (see **Tech Chart**). **LV**s have cost in **ORE** and **FUEL** to build. Normally **LV**s are expended after their move, but after you have the technology *Reusable launch vehicles*, roll to see if you get to keep the **LV** at its launch location (even if you recover a launch vehicle, you can only use it once per turn). You can voluntarily destroy your **LV**s at any time (e.g., if you want to build them somewhere else).

For resource transport, during movement (3.3.2) you can use an **LV** to transport resources from the **LV**'s location to any of your bases (or from a base to Earth). The number of resources that may be transported is equal to the **LV**'s size (1-4). Roll for launch failure as usual. The move is instantaneous, but can be intercepted (3.3.6) if the **LV** is leaving or going to a blockaded base (see 3.4.7).

### 2.6.2 Robotic Explorers (REs)

**RE**s are expendable robotic spacecraft used for exploration. They are destroyed when they fail an engine failure check (3.3.5), malfunction check during exploration (3.5.5) or by a single hit in combat (3.4).

There are five types or **RE**s:

**Probes** are small craft, destroyed after a single exploration (see 3.5.1). **Probes** may not move on their own, but are carried by **Flyby**, **Orbiter**, or **Rover REs** (maximum one **Probe** per carrier).

**Telescopes** may only be used in Earth orbit, but they can explore any world with long-range observations (see 3.5.1).

**Flyby** spacecraft don't have the capability to enter orbit, but zoom around the solar system exploring from afar. Their use is described in movement (3.3.3) and exploration (3.5.1).

As their name suggests, **Orbiters** explore worlds from orbit (see 3.5.1).

**Rovers** are generally the most effective and expensive **RE**s, exploring a world from its surface, but they may not be used at certain worlds like gas giants.

### 2.6.3 Crew Vehicles (CVs)

**CV**s are multi-role crewed spacecraft that can explore, build bases, produce and transport resources, and fight. **CV**s are destroyed when they sustain damage markers equal to their size (e.g., **CV**-2s are destroyed by 2 damage markers, while **CV**-8s are destroyed by 8 damage markers).

### 2.6.4 Ship Counters

Ship counters indicate their properties, including their size, exploration values, cargo capacity, whether they can produce resources, combat value, whether they have drones and how many, and their build cost. A ship with no exploration value can't explore, and a ship with no combat value can't inflict any damage.

Some **CV**s are equipped with mobile laboratories. These allow the owner to roll 2 dice during exploration and choose one to keep (see 3.5.2). Some **RE**s are equipped with spectrometers. These allow the owner to draw two world cards with depletions during exploration and choose one to keep (see 3.5.3).

### 2.6.5 Crew Vehicle Range

At the start of the game, you don't have the life support technology to send **CV**s into deep space. If you have no techs that modify range, you can only send **CV**s into Earth orbit. The tech *Orbital rendezvous* allows you to send **CV**s to the Moon (orbit and surface) and the Near-Earth Asteroids. Certain Biology and Physics techs increase your **CV** range (see **Tech Chart**). This range is the maximum heliocentric distance a crew vehicle can travel from Earth or any base that has a large enough **Supply Station** or **Spaceport** to unreserve the **CV** (see 3.2).

For example, you could send a **CV** to any world in the Jupiter system with the tech *Deep space exploration*, even if you had no bases (Jupiter being a range of 5 from Earth; see heliocentric distance indicated right above Jupiter on its solar system tile). However, a base in the Main Asteroid Belt with a small **Supply Station** would allow a **CV**-2 to travel to the Jupiter system with the tech *Advanced life support* (Jupiter being a range of 5-3=2 from the asteroid belt). Note that the **CV** would not have to travel from the asteroid belt (it could travel to Jupiter directly from Earth), but the presence of the **Supply Station** in the asteroid belt allows the move.

## 2.6.6 Reserve Status

In *STELLAR HORIZONS*, ships are assumed to be resupplied in space so you don't need to track life support, but crew fatigue and equipment wear mean that **CV**s can't continue to operate effectively forever. This is represented by 'reserve' status.

Turn an active **CV** to its 'Reserved' side <u>immediately</u> if:

- You choose to reserve it at the <u>start</u> of any turn;
- It gets recalled during exploration, production, or combat (see 3.5.5, 3.5.6, & 3.4.6);
- It has insufficient range to reach Earth or a base that could unreserve it (see 3.2). (This could happen if a base or its facility were destroyed.)
- It surrenders (see 3.4.3).

A reserved **CV** cannot explore, produce, trade, build bases, or be part of a fleet that initiates combat. However, a reserved **CV** can still move, so you could, for example, use it for resource transportation or defense.

You can choose to build **CV**s in their 'reserved' status. If you do this, subtract 1 **SUP** and 1 **FUEL** from their cost (the cost to unreserve a **CV** the first time is included in its price, see 3.2). You might do this to use it as a simple resource carrier, or to stage it to a forward base before unreserving it.

## 2.6.7 Re-Entry

Some worlds are marked with a re-entry symbol because they have significant atmospheres. Worlds with re-entry symbols are off-limits for **CV**s larger than size **CV**-4 (**CV**-5 and up). Since Earth is one of these worlds, you generally will have to build a space station in Earth orbit or elsewhere to construct large spacefaring vessels (exception: you could build larger ships in Earth orbit with the tech *Space elevators*).

*Stellar Info: Re-entry is one of the most dangerous phases in a space mission.*

## 2.6.8 Severe Atmosphere

Venus and the gas giants combine extreme temperatures and crushing atmospheres. **CV**s can only land on or explore these worlds if you have the tech *Pressure shells*. On Venus, **Rovers** suffer a +20% malfunction penalty unless you have this tech (**Rovers** aren't allowed on the gas giants). Even after you have *Pressure shells*, the world is still treated as having a re-entry symbol.

# VEHICLES Values & Symbols

Vehicle Type
Faction Flag
Vehicle Name

**Cargo Capacity**
- X — Cargo Only
- X — Cargo & Production

**Combat**
- X — Combat Value
- X — Combat value (ship includes drones)
- — Number of Drones Squadrons

Exploration
- Basic Sensors
- with Mobile Lab (CV)
- with Spectrometer (RE)

**[Backs] Cost in Resources**
Note: Launch Vehicles only have front sides
- 3 — Ore
- 4 — Supplies
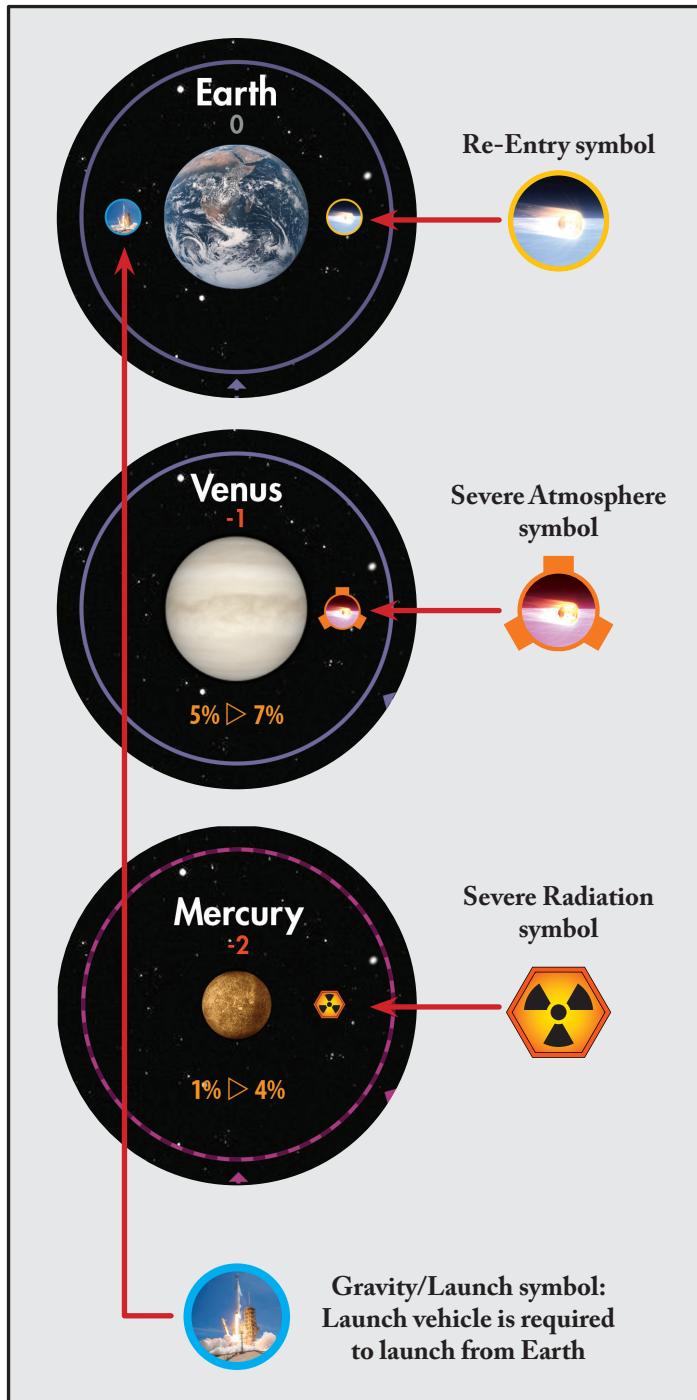- 2 — Fuel

In Reserved State
Requires Resources to Unreserve

## 2.6.9 Severe Radiation

The Sun and Jupiter exude levels of radiation that would kill human visitors. **CV**s can only enter radiation areas (see solar system tiles) if you have the tech *Active radiation shielding*. **RE**s located in radiation areas suffer a +10% malfunction penalty unless you have this tech.

**Earth**
0

**Re-Entry symbol**

**Venus**
-1

5% ▷ 7%

**Severe Atmosphere symbol**

**Mercury**
-2

1% ▷ 4%

**Severe Radiation symbol**

**Gravity/Launch symbol: Launch vehicle is required to launch from Earth**

## 2.7 BASES

Bases include space stations (in Earth orbit and at gas giants) and surface bases (other worlds). Bases with **Settlements** are considered colonies, and can grow during the economic phase (3.1.8). Depending on their facilities (**Spaceports**, **Supply Stations**, **Research Labs**), bases can build, repair, and service ships (see 3.2) and produce resources and tech points. Multiple factions can have bases at the same location; however, each faction can only have one base at any particular location.

You build bases during the base construction step (3.6.2). You can only build bases in Earth orbit and on worlds with an indicated base construction cost. Bases are destroyed when they take a single hit in combat after losing all their facilities. You can also voluntarily destroy your own bases.

### 2.7.1 Facilities

Facilities are buildings and infrastructures constructed at bases to mine resources, produce tech points, build and service ships, and more. Other than **Settlements**, each base can only have one type of each facility, but facilities have two levels. A small facility must be built before it can be upgraded into its large version (on a subsequent turn, see 3.6.2).

Additionally, **Spaceports** are actually upgraded versions of **Supply Stations** and **Refineries** are actually upgraded versions of **Mining Stations**. For example, when you converted a large **Supply Station** into a small **Spaceport**, you would remove the **Supply Station** marker from the base. Facilities can be downgraded if they sustain damage equal to their defense value (which could turn a **Refinery** back into a **Mining Station**, for example), or destroyed if they are already at their lowest level.

**Mining Stations** and **Refineries** enable and increase base resource production (3.1.4). **Research Labs** enable and increase base tech marker production (3.1.4). **Supply Stations** and **Spaceports** allow bases to service and build ships (3.2). **Defense Networks** protect bases from attack (3.4).

**Settlements** are built in increments of 1 and there is no limit to how many settlements you can have at a base. They increase base trade and production (see **Faction Sheets**), and are a victory condition (see 4.0). They can also be destroyed if they sustain damage.

## BASES & FACILITIES

**Base** — Elysium

Bases are built in the base construction step (3.6.2). They can only be built in Earth orbit or on worlds with a base construction cost indicated.

**LARGE Supply Station** — 2 | 4 | 2 — Build & Service Max: LV4 / CV3

Large **Supply Stations** are upgraded to Small **Spaceports**.

*All facilities are built or upgraded in the base construction step, (3.6.2).*

**SMALL Spaceport** — 3 | 5 | 3 — Build & Service Max: CV2 / CV5

Small **Spaceports** are upgraded versions of Large **Supply Stations**.

**LARGE Mining Station** — 2 | 4 | 2 — +1 Resource Production

Large **Mining Stations** are upgraded to Small **Refineries**.

**SMALL Refinery** — 3 | 5 | 3 — +3 Resource Production

Small **Refineries** are upgraded versions of Large **Mining Stations**.

**LARGE Research Station** — 2 | 4 | 2 — +3 TECH Point Production

**Research Stations** enable and increase base Tech production (3.1.4).

**LARGE Defense Network** — 6 | 9 | 7 — 3 Combat Drones

**Defense Networks** protect your bases from attack (3.4)

**SETTLEMENTS** — 5x | 3 — 2 | 2 | 1

There is no limit to the number of Settlements you can have at a base. They increase base trade and production, and are a victory condition (4.0)

## 2.8 FLEETS & STACKING

A single ship or stack of ships, plus up to one base owned by a single faction or set of allied factions operate as a 'fleet' that can move and fight together. You could have several independent fleets at the same location (e.g., 2 separate stacks of ships/bases in Earth orbit). Note that you can also stack with non-allied faction's bases in order to trade (see 3.6.1), but this doesn't count as forming a fleet.

Ships can elect to join/leave a fleet automatically when they enter/depart its location. However, in order for a ship (or sub-fleet) to join or leave a fleet while remaining at the same location, it must make a move (and roll for engine failure, see 3.3.5) during the movement phase. This represents moving to a different part of the world/orbit (e.g., to explore).

You can transfer resources amongst a fleet at the start of any phase or step. You can also destroy your own resources except during the combat phase (you might do this to trade for new resources or prevent your resources from being captured; see 3.4.3).

Fleets containing bases can't explore (see 3.5) or initiate combat (see 3.4.2).

### 2.8.1 Space Elevators

If you have the tech *Space elevator*, you can treat your ships in orbit of worlds where you have a base as if they were located at that base for all purposes except fleet stacking for combat. Similarly, with the *Space elevator* tech, your ships in Earth orbit are treated as if they were located at Earth (including construction of the ship). You may also freely transfer resources between Earth and a base in Earth orbit.

**Space Elevator** — 30 — Treat Ships in Orbit as if they were on a World's Surface (See Rules)

### 2.8.2 Damage Markers

Ships and base facilities can sustains damage from combat and game events. The following describes what damage markers do:

**DAMAGE 1**
**DAMAGE 3**

- Each damage marker on a **CV** reduces its exploration and combat values by 1 (if exploration or combat value is reduced to zero, the ship can't explore or inflict damage, respectively).
- Each 2 full points of damage on a **CV** reduces its useable drone squadrons by 1.
- Damaged **Settlements** don't count for trade or production modifiers (separate out damaged **Settlements** from undamaged ones).
- Damaged **Mining Stations**, **Refineries**, and **Research Labs** produce one less resource or tech point per point of damage.
- Damaged **Spaceports** and **Supply Stations** count as one level lower than they actually are (or for small **Supply Stations**, don't function at all).

You can remove a damage marker by paying 1 **ORE** (for ships, this is considered a repair and requires a **Supply Station** or **Spaceport**; see 3.2).

# 3.0 SEQUENCE OF PLAY

The turn is divided into phases, which are subdivided into steps. Each phase/step is completed in initiative order unless indicated below. The sequence of play is:

**1. ECONOMIC PHASE** (only every decade starting 2040) (3.1)

  a. Collect politics markers & roll for events - 3.1.1

  b. Roll for initiative (simultaneous) - 3.1.2

  c. Diplomacy (reverse initiative order) - 3.1.3

  d. Earth & base production - 3.1.4

  e. Resource transportation - 3.1.5

  f. Assign **NPF** bases, pirates, asteroids, & trade markers - 3.1.6

  g. Develop technologies (reverse initiative order) - 3.1.7

  h. Settlement growth - 3.1.8

  i. Policy step (reverse initiative order) - 3.1.9

**2. BUILD & SERVICE PHASE** (3.2)

  a. Build and service ships (reverse initiative order)

**3. MOVEMENT PHASE** (3.3)

  a. Drop all ships in transfer boxes (simultaneous)

  b. Movement (order by initiative choice)

**4. COMBAT PHASE** (3.4)

  a. Space combat

**5. EXPLORATION PHASE** (3.5)

  a. Explore (with depletion: mission, world card, search for life, politics marker); check for malfunction/recall - 3.5.1 - 3.5.5

  b. Produce with **CV**s - 3.5.6

**6. TRADE & BASE CONSTRUCTION** (3.6)

  a. Trade with bases - 3.6.1

  b. Build & expand bases - 3.6.2

  c. End of game check - 3.6.3

  d. Advance turn marker - 3.6.4

## 3.1 ECONOMIC PHASE (EVERY DECADE)

The economic phase (every decade <u>starting in 2040</u>; see turn track) allows you to direct your faction's long-term development.

### 3.1.1 Collect Politics Markers & Roll for Events

Now each player collects 2 politics markers (plus any extra from your diplomatic space policy). Collect an extra politics markers for each alliance you have (see **Faction Sheet**). Then, roll to apply one event (see 5.0), or two events starting in 2100.

### 3.1.2 Initiative Step

Now all players roll percentile dice for initiative at the same time. Player may spend politics markers to increase their initiative roll by 10% per marker spent. The maximum number of markers you can spend is equal to your current initiative position (1st place = 1; 7th place = 7). All players declare how many they are spending (in the previous initiative order, 1st goes first, etc.) before any players roll. Military policies also modify your initiative roll (see **Tech Chart**).

Reset the initiative order of players in order from highest to lowest result (i.e., highest roll gets the #1 slot, second highest gets the #2 slot, etc.). Ties go to the player who previously had a higher initiative.

### 3.1.3 Diplomacy Step

First, roll a die to see if any foreign relations drift towards neutral (roll two dice starting in 2100). Cross reference the roll with the <u>original</u> initiative order on the **Turn Track** (1 = North America, 2 = Russia, 6 = Japan, etc.), and move all relations the resulting faction has one space towards neutral. For example, if the roll results in a shift in Russia's relations and you have an alliance with them, move your Russian relations down to collaboration. This applies even if the resulting roll is a player's faction. For example, if a '1' is rolled, the North American player would shift all their relations either left or right towards neutral, and any player with non-neutral relations with North America would also correspondingly shift. If the roll is 8 or higher, ignore it (don't reroll).

Next, players can attempt to modify their foreign relations. In <u>reverse initiative order</u>, each player announces how many politics markers they're spending to increase or decrease relations with each other faction. Foreign relation increase or decrease attempts cost 1 politics marker for the first attempt, 2 for the second, 3 for the third, etc. For example, you could attempt to increase your foreign relations with another faction by 4 levels by spending 10 politics markers (1+2+3+4). Once all players have announced markers to spend on foreign relations increase or decrease attempts, roll for all attempts. An attempt is successful on a roll of 6 or less. Apply the net result of successful attempts. For example, if two players are trying to shift their relations in opposite directions (one player is attempting to increase relations while the other is attempting to decrease them, e.g., to embargo or declare war), subtract successful decreases from successful increases and apply the difference which could result in a net move up or down.

Note that relations may only move to 'Embargo' if a player who successfully decreased relations has *Military policy* (see **Tech Chart**). For relations to move to 'War', a player who successfully decreased relations must have *Vigorous military policy*. Note also

that players can refuse to enter into collaborations and alliances if they wish (choosing to not allow their mutual relations to rise above 'Free Trade' with a particular faction).

### 3.1.4  Production Step

First, collect your Earth production. You get cash in billions (**$B**) and tech points of each type, based on the current decade (see top left of **Faction Sheet**; note that '2030' applies from 2030-2050, '2060' applies from 2060-2080, and so on). Depending on your policies, foreign relations, blockades, and mission markers, you may earn bonus cash. Reduce your Earth production by **$1B** for each active pirate (add all cash subtracted in this way to the pirate cache, see 3.4.8).

You may also need to pay maintenance if you've exceeded your support limits for ships and bases. Your support limits are indicated at the top left of your **Faction Sheet**. These are the maximum number of (non-probe) **RE**s, **CV**s, and bases you can support for free (modified by policies, see **Tech Chart**).

For each **CV** or base in operation above your support limit, you'll need to pay **$4B** for the first, **$6B** for the second, **$8B** for the third, and **$10B** for the fourth (cumulative **$4B/$10B/$18B/$28B**).

For each (non-probe) **RE** in operation above your support limit, you'll need to pay **$2B** for the first, **$3B** for the second, **$4B** for the third, and **$5B** for the fourth (cumulative **$2B/$5B/$9B/$14B**).

You may *never* exceed four above your support limit (not even temporarily outside an economic phase). If you have unused support limits, earn **$1B** for each (e.g., if you could support 3 non-probe **RE**s but only have 1, you would earn **$2B**). Note that you may voluntarily destroy ships or bases to avoid paying maintenance costs (and you may have to do this if you don't have enough Earth production and saved cash to pay).

Next, you produce with your bases (**CV**s can also produce resources, but they do this differently; see 3.5.2). Bases require a **Mining Station** or **Research Lab** to produce resources or tech points, respectively.

Resource production with bases is equal to the world production value (on the world card, if there is one, otherwise zero), plus any intrinsic bonuses of the world (indicated on its solar system tile). A base must have a production value greater than zero to produce resource (e.g., a base in Earth orbit can never produce resources but could produce tech). Large **Mining Stations**, and small or large **Refineries** increase resource production by 1, 3, and 5, respectively.

For the production of tech, earn tech points of the World Card's indicated research type (Physics, Engineering, or Biology) equal to the World Card's research value (treated as '3' in any field of your choice for Earth orbit). (Note that exploration values don't affect tech production). You must have at least a small **Research Lab** to produce tech, and a large **Research Lab** yields an additional 3 points. Worlds where *Signs of life* or *Life!* (see 3.5.4) have been found yield additional tech production bonus of 1 or 2 tech points, respectively.

Each player can only produce one item at each base per economic phase. I.e., you can't produce 2 types of resources or both resources and tech points at the same base. (This means that for most bases you will want to choose to build a **Mining Station** or **Research Lab**, although you could build both to maintain flexibility.)

Reduce your production of resources and tech points at bases by 1 for each player who produces the same type of resource or tech ahead of you in initiative order at the same world (including Earth orbit), and also for each pirate in the Flyby box of the same planetary system.

### 3.1.5  Resource Transportation

Now, if you have the techs *Trade routes* (see **Tech Chart**), you can transfer resources between your bases and Earth. Each movement of one resource from one location to another counts as a transfer. You may not transfer resources to or from blockaded worlds or worlds where there is a pirate in the Flyby box of the same planetary system, including Earth.

### 3.1.6  Add Bases, Asteroids, Pirates & Trade Markers

Now roll to check if you add a non-player faction (**NPF**) base. To do this, roll one set of percentile dice and consult the event probability indicated on solar system tiles (e.g., 20-26% for Mars). If the world rolled is located along a planetary system with a decade less than or equal to the current decade (e.g., 2050+ for Mars) and the world doesn't yet have an **NPF** base, add a new **NPF** base to the world (put all **NPF** bases in a pile and randomly select one). Otherwise, don't add a base.

Starting in 2050, add asteroids and pirates in exactly the same way (different sets of dice for each), except place them in the corresponding Flyby box instead of at the world. For example, if "15%" is rolled (corresponding to the Moon, 12-19%) add the pirate or asteroid to Earth Flyby. There is no limit to the number of asteroids and pirates which may occupy a Flyby box. If you run out of markers, the player with the first (best) initiative can take one from any solar system tile to place the new arrival.

Starting in the year 2100, roll an extra set of percentile dice for both pirates and asteroids. Also roll an additional set of dice for both asteroids and pirates starting in 2080 if there are 4 or more players in the game. For pirates, use the weaker (lower combat value side) early in the game. Starting in the year 2120, new pirates use their stronger side. When a pirate is added, add **$5B** to the pirate cache (see 3.4.8).

Also assign trade markers to each base that doesn't already have one. Randomly select both the resource type (marker), and side (Buy/Sell). If there aren't enough markers to assign, players take trade markers for their bases, one player at a time, in initiative order from best to worst. Then the player with the best initiative position can assign trade markers to **NPF** bases in whatever order they prefer.

### 3.1.7  Develop Technologies

Players now compete to develop techs. First, convert all your tech markers to tech points in your tech bank (see 2.3.3). Then, one at a time in reverse initiative order, each player can either develop one tech or pass. A player that passes can't develop techs again later this step.

In order to develop a tech, you must have already developed all projects connected to its left (see 2.4). Mark techs you develop

with your faction marker (flag). If you need to save faction markers, you only need to mark the "leading edge" of development (i.e., once you develop a tech, you no longer need to mark projects connected to its left).

The cost and type of points needed to develop a tech is indicated by its section on the **Tech Chart** (e.g., 15 **blue** Physics points must be spent to research *Advanced astrodynamics*). This cost is modified by -3 for each other <u>player</u> that has already developed it (minimum cost = 5). Pay tech points from your tech bank (see 2.3.3).

After all players have had a chance to develop a tech once, players that didn't pass restart the process. Repeat this cycle until all players have passed.

Finally, convert any remaining politics markers to cash or tech points (see 2.3.4), and then halve your banked tech points of each type.

### 3.1.8  Settlement Growth
At each of your bases, add up the number of settlement levels. For each full 10, you can add one additional settlement to that base. For any remaining fraction of 10, you can add a settlement if you roll that number or less (e.g., if you have 2 settlements, you gain one on a roll of '1' or '2', or if you have 13 you automatically gain one and gain a second on a roll of '1', '2', or '3'). If your base is blockaded (3.4.7), it loses settlements instead of gaining them in this way. In either case, you can roll two dice and choose which to use if you have the policy *Unified space settlement*.

### 3.1.9  Policy Step
Each player can now select one new policy. This is like developing a tech, except it's free. You can only have one *Unified* policy and you can never have more than 10 policies total, but you can choose to abandon an old policy to allow you to select a new one (just remove the old one when you select a new one).

## 3.2  BUILD & SERVICE SHIPS
At the start of each turn, you can build and service (repair and unreserve) ships. When you build a ship, the resource cost must come from the location where you're building it (a base's stockpiles, or cash in the case of Earth). Earth counts as having a large **Spaceport** for all purposes, but since it is off-limits to ships larger than **CV**-4s (see 2.6.7), it can't build or service them without the tech *Space elevator* (see 2.8.1).

To build a ship at a base, you must have at least a small **Supply Station** (for **LV-1**s and **LV**-2s), large **Supply Station** (for **LV**-3s and **LV**-4s), a small **Spaceport** (for **RE**s and **CV**-2s), or a large **Spaceport** (for larger **CV**s).

To unreserve a **CV** at a base, you must have at least a small **Supply Station** (for **CV-2**s), large **Supply Station** (for **CV**-3s), a small **Spaceport** (for **CV**-4s and **CV**-5s), or a large **Spaceport** (for larger **CV**s). Each unreserved **CV** costs 1 **SUP** and 1 **FUEL** (or **$2B** on Earth).

Repairing a **CV** allows you to remove damage markers from it. A small **Supply Station**, large **Supply Station**, small **Spaceport**, or large **Spaceport** can remove 1, 2, 3, or unlimited damage markers from **CV**s located there each turn, respectively. You can

also remove damage markers from facilities in this step (this is unlimited). Each damage marker removed costs 1 **ORE** (or **$1B** on Earth).

You can scrap undamaged **CV**s you no longer want to operate at one of your bases or Earth. Destroy the **CV** and add up its resource cost by type (**ORE, SUP, FUEL**). Add half the resource value of each type to the base stockpiles or your reserves on Earth. If you scrap a reserved **CV**, subtract 1 **SUP** and 1 **FUEL** from the cost before rounding (which could add up to the same amount after rounding).

## 3.3  MOVEMENT PHASE
The movement sequence is:

- drop <u>all</u> ships in heliocentric transfer boxes,

- conduct moves one player at a time. Normally players move in <u>reverse</u> initiative order (worst initiative) moves first, but at the start of the movement phase, a player with better initiative may announce that they are moving ahead of a player with worse initiative (and everyone else who would normally move after that).

### 3.3.1  Drop Ships in Heliocentric Transfer Boxes
Drop all ships in planetary system numbered transfer boxes by 1 (drop ships in the '1' box to Flyby). This is not considered a move, costs no movement points, and doesn't require an engine failure roll.

### 3.3.2  Planetary System Moves
Ships can move along move segments:

- between a world and its orbit (e.g., between Earth and Earth orbit),

- between world orbits connected to the same planetary system (e.g., between Earth orbit and Lunar orbit), and

- along movement arrows to/from a world orbit and a Flyby box (e.g., between Lunar orbit and the Earth Flyby box).

You can combine multiple move segments and even a heliocentric transfer (3.3.3) as part of the same move. Ships can move multiple times each turn; however, they must stop if they i) land on a world (including Earth), ii) stack with a base, or iii) load or unload resources.

Some ships have movement restrictions. **CV**s are restricted by re-entry (2.6.7), severe atmosphere (2.6.8), and severe radiation (2.6.9). **RE**s must always use an **LV** on their first move (launching from Earth or a base). **Telescopes** can only move from Earth to Earth orbit and then must remain there. **Probes** must be carried by other **RE**s. **Flyby RE**s can only ever occupy numbered heliocentric transfer boxes and flyby boxes (after launch). **Orbiters** and **Rovers** can never move again once they enter orbit or land on world surface to start exploring. (See 3.5.1 for more information on how **RE**s work.)

### 3.3.3  Heliocentric Transfers
Heliocentric transfers allow you to move ships between planetary systems. The time to perform the transfer is equal to the difference in numbers indicated in each of the solar system tiles at the center

of planetary systems (e.g., 0 for Earth, +1 for Mars, or +7 for Saturn), adjusted by your heliocentric transfer modifier (see **Tech Chart**).

For example, if you were performing a transfer from Earth to Saturn (7-0=7) with the tech *Fusion rockets* (heliocentric transfers ×0.6), the transfer would take 4 turns and you would place the ship in the Saturn '4' box. For distances greater than 10, compute the time for every full 10 first and then add any remainder. For example, to transfer from Earth to Alpha Centauri (45) with the tech *Practical anti-matter* (heliocentric transfers ×0.5), you'd calculate the transfer time as a distance of 10+10+10+10+5, which would take 5+5+5+5+3=23 turns. (Use 'Helio +6/+12' markers to indicate transfers longer than 6 turns.)

### 3.3.4 Moving With Launch Vehicles
At the start of the game, you'll need to use **LV**s to make most moves from Earth. Unless you have the tech *Reusable launch vehicles*, **LV**s are expendable; destroy them after their move. If you have *Reusable launch vehicles*, don't destroy the **LV** if you roll higher than 25% on your engine failure roll (see 3.3.5).

**RE**s must always be carried on **LV**s for their first move from anywhere. Any size of **LV** can carry an **RE**, but you can reduce **RE** heliocentric transfer times by 1 turn for each size larger than **LV**-1 (for example, you can reduce the transfer time by 3 by launching an **RE** using an **LV**-4). **CV**s must always be carried when leaving Earth, with an **LV** size equal to or greater the size of the **CV**.

You can also use an **LV** to transport resources (see 2.6.1).

### 3.3.5 Engine Failures
Ships must check for engine failure whenever they move. If you're launching a **CV** or **RE** on a **LV**, the roll counts for both ships. Before any modifying techs, your starting engine failure rate is 5%. For **CV**s (even when launching on an **LV**), subtract the **CV** size from your engine failure rate. For example, at the start of the game, a **CV-2** would have an engine failure rate of 5-2=3%. You don't need to roll for engine failure rates less than 1%.

Engine failures destroy the ship(s) and any cargo being carried. For each **RE** you lose to engine failure (even during launch) or **LV** destroyed while transporting cargo, draw 1 free Engineering tech marker (note: you don't earn and Engineering marker for failing to recover an **LV** with a roll of 25%+ using *Reusable launch vehicles*). For each **CV** lost to engine failure (even during launch), draw 3 free Engineering tech markers for a **CV-2**, or 5 for a **CV-3**.

### 3.3.6 Interception
A fleet can intercept another fleet <u>leaving</u> its location (world, orbit, or Flyby box), provided it would be eligible to take an offensive action against it (see 2.5). More than one fleet can attempt to intercept a moving fleet, and fleets can conduct multiple interceptions in the same turn. Interception does not preclude a fleet from searching later (3.4.1).

The interception attempt is announced after the moving fleet's engine failure check is complete. Resolve interceptions like searches (3.4.2). Fleets containing only **LV**s and/or **RE**s are destroyed by successful interceptions. Fleet containing **CV**s that are successfully intercepted can choose to either i) stop moving,

or ii) resolve the interception immediately as if it was a successful combat search (see 3.4).

After any interception combats are resolved, remaining ships in intercepted fleets can complete their move, or choose to cancel the move and even make another different move if so desired (which could result in another interception attempt).

One pirate per Flyby box will always try to intercept fleets containing **CV**s leaving their transfer box (even fleets passing through to make a heliocentric transfer), except if those fleets contain any **CV**s with combat values. (See 3.4.8 for combat with pirates.)

## 3.4 COMBAT PHASE
Combat takes place in initiative order, with the player in the first slot resolving all combat before the next player starts.

### 3.4.1 Space Combat
The sequence of play for combat is:

1. Resolve searches.
2. If a search is successful, resolve surrenders.
3. Roll for tactics points.
4. Resolve strike or direct fire.
5. Post-combat effects.

### 3.4.2 Searching
Space is big; in order to fight, first you must find your enemy. In order to initiate a search, a fleet must be composed solely of unreserved **CV**s (no **RE**s or bases), must have at least one ship with an attack or strike value, and (unless searching for pirates) must be owned by a player with foreign relations that allow the intended offensive action against the target (see 2.5). Remember that you can never take any offensive action in Earth orbit.

One at a time, each of your fleets can search for <u>one</u> enemy fleet the same location each turn (world, orbit, or Flyby box, but not a numbered transfer box). Alternatively, if the fleet you're searching for contains a base on a world surface, you can initiate combat with it from orbit (orbital bombardment).

Both the searching fleet and the fleet being searched for roll a search die (even if the fleet being searched for could not initiate a search). If there are no bases involved, the search is successful if either side finds by rolling a '4' or less. If there is a base on one side, the search is automatically successful by both sides, but the search roll will determine tactics points (see 3.4.4).

Increase both side's chance of finding by 1 for each **CV** after the first in both the searching fleet and fleet being searched for (e.g., for a fleet of 2 **CV**s searching for a fleet of 3 **CV**s, either side would find on a roll of 8 or less (5+1+2=8)). If you have the tech *Fighter Drones*, subtract 1 from your <u>search roll</u> if your fleet contains a drone squadron (even from **Defense Networks**), or 2 if your fleet contains 5 or more.

**LV**s and **RE**s that are unaccompanied by **CV**s or bases are automatically destroyed by any successful search.

### 3.4.3 Surrender

After any successful search against a fleet containing **CV**s and/or bases, the other side may choose to offer to surrender (the entire fleet must offer or not). While embargoing, you must accept all surrenders. At war, you must accept bases' surrenders, but you can choose to exclude ships in the defending fleet from the surrender, attacking them separately before resolving the base's surrender. If you do this, you must exclude or include all defending ships. Treat this as an entirely separate battle (also resolve post-combat effects separately).

If you accept a defender's surrender:

- Destroy all resources carried by surrendering **CV**s. Roll a die and destroy that roll's worth of resources stockpiled at a defending base (attacker's choice which types). You can take half the amount of each type of resource destroyed from **CV**s and bases into your fleet, up to your fleet's cargo capacity.

- Reserve all defending **CV**s.

- Take one politics marker from the defender (if they have any to take).

A fleet that surrenders may not be attacked by the same faction(s) it surrendered to later in the turn. If the attacker rejects a surrender or none is offered, initiate combat.

### 3.4.4 Resolve Tactics Points

At the start of combat, each side earns tactics points equal to the other side's search roll (modified by drone squadrons, policies, and techs). Furthermore, each side adds to its tactic points 1 for every full 7 points of enemy **CV** size. For example, if an enemy fleet contained a **CV**-2, a **CV**-4, and two **CV**-6s, you would add 2 (2+4+6+6=18=+2). This represents smaller fleets being more nimble.

The side with the larger number of tactics points subtracts the other side's tactics points from theirs and can spend any remainder (i.e., only the side with the larger number of tactics points will get to spend any). You can spend tactics points as follows.

- Make it a direct-fire combat: if neither side spends tactic points, the combat will be a strike. The side with more tactics points can spend 1 to make the combat direct-fire instead.

- Avoid combat: you can spend 3 tactics points to call off the combat entirely.

- Increase or decrease damage: you can spend 2 tactics points per point of additional damage you wish to inflict on the enemy or decrease on yourself (announced before either side rolls for damage).

- Select targets: you can spend 1 tactic point to select a target to receive damage instead of your opponent (on your own fleet or your enemy's; announced as targets are picked).

### 3.4.5 Resolve Combat

If it is a direct-fire combat (not strike), you can select any of your ships and/or bases that you wish to be screened. You might do this to protect a particularly vulnerable ship or base. These may not contribute any attack factors to the combat, but may not be selected to receive damage unless tactics points are spent to select

them as targets. However, once all unscreened ships and bases in your fleet are destroyed, all screened units become eligible to receive damage.

If it is a strike combat and you have the tech *Fighter Drones*, decrease the damage inflicted on your fleet during strikes by 1 per fighter squadron in your fleet. If it is a strike combat and you have the tech *Bomber Drones*, you will choose if you wish to use your drone squadrons as fighters (to defend) or bombers (to attack). If flown as bombers, these will increase the damage you inflict on your enemy in a strike by 1 per fighter squadron in your fleet. Note that this means that your defending fighters will cancel out your opponent's bombers, and only any excess will get through to increase damage. If both sides can choose between fighters or bombers, this is decided secretly and revealed simultaneously.

Now both sides simultaneously determine how much damage they inflict. Add up your combat values, and add one die roll plus 1 for each enemy unit in the combat (ship or base) after the first, and cross reference the result with the combat table (see 11.0 at the back of these **Rules**). For example, if you have 3 **CV**s with combat values of 3, 2, and 5, firing at a base with one **RE** and one **LV**, and you roll a '6', you would use the 18 row for 6 damage in direct-fire, or 5 damage in strike (3+2+5+2+6=18). You must have the tech *Space missiles* to inflict any damage in strike combat.

The damage on each side is determined simultaneously, but it is resolved first on the side that initiated the search. Damage is inflicted one hit on one unit at a time, with each side alternating picks on ships or bases. For strikes, the side inflicting damage picks the first target. For direct-fire, the side receiving damage picks the first target. If you have tactics points, you can spend them to pick a target on either fleet instead of your opponent.

Each hit applies one damage marker to a **CV**, or destroys an **LV** or **RE** (note that this is only possible for a defending fleet since fleets with **LV**s and **RE**s can't initiate searches). **CV**s are destroyed when they accumulate damage markers equal to their size (see 2.6.3). Bases without facilities are destroyed by a single point of damage. Otherwise, hits can be applied to facilities or resources (there must be a valid target to choose). Each facility hit adds a damage marker to that facility. Destroyed large facilities can be downgraded into their small version, and **Spaceports** and **Refineries** can be converted back into **Supply Stations** and **Mining Stations** (see 2.7.1). For each resource hit, destroy 2 resources (the player applying the hit can choose which type, or decide to destroy one resource of two different types).

### 3.4.6 Post-Combat Effects

For each player-controlled **CV** you destroy in combat, earn victory markers based on the ship's size (1 victory marker for **CV**-2s and **CV**-3s; 2 victory markers for **CV**-4s and **CV**-5s, 3 victory markers for **CV**-6s, or 4 victory markers for **CV**-7s or larger. These are earned even if you don't win or even survive the battle. For each **CV** or base you lose in combat (even with pirates and during **NPF** raids, see below), earn equivalent Engineering tech markers (1 for **CV**-2s and **CV**-3s, 2 for **CV**-4s and **CV**-5s, etc.).

For each damage marker sustained by a **CV** in combat (including with pirates and **NPF** raids), the **CV** must check for recall (and

could earn a Biology tech marker if recalled, see 3.5.5, but only a maximum of 1 per ship).

### 3.4.7 Blockades

If you have a fleet that could attack a base from orbit, you can instead declare a blockade. Blockading fleets must be composed solely of unreserved **CV**s. Furthermore, blockading fleets must have combat values at least equal to that of **Defense Networks** at the base they're blockading.

When a base is blockaded, its tech and resource production is halved after all modifiers (3.1.4), its **Settlements** decline in number instead of growing (3.1.8), and it may not trade or receive a new trade marker (2.3.6). Furthermore, the blockading player receives **$2B** for each blockade during the production step (representing intercepted commerce).

### 3.4.8 Combat With Pirates

If your ship is successfully intercepted by pirates (see 3.3.6), roll a die. You can either pay the pirates cash equal to the die roll (which goes into a 'pirate cache' and allows you to pass), surrender, or fight. Apply surrenders as described in 3.4.3 (destroy resources, reserve the **CV**(s), and lose a politics marker). Alternatively, you may pay pirates double the die roll to remove the pirate (this doesn't count as destroying the pirate, and the amount paid goes into the pirate cache). You may go into debt for the purpose of paying off pirates (track the amount and subtract it from your next Earth production).

If you choose to fight, initiate combat as usual. You may also search for pirates to fight them, but only one pirate is ever included in combat at a time (the strongest if there is more than one). Pirates roll for searches but spend tactic points to avoid combat with armed ships if they can. If forced to fight, they always attempt to choose direct-fire combat, but don't otherwise spend tactics points. Players fighting pirates can choose how to apply all damage they sustain.

Pirates that are damaged but not destroyed remain where they are (with damage makers). Destroying a pirate earns you half the accumulated pirate cache (which is shared across all pirates), a politics marker, and a victory marker.

### 3.4.9 Blockading & Raiding NPF Bases

If you have relations of embargo or worse with an **NPF**, you can blockade their bases (subject to the restrictions of 3.4.7, ignoring **Defense Networks**). If you do, you receive **$2B** for each base you're blockading during the production step.

During the combat step, you can also try to raid **NPF** bases you are at war with. This works like an attack, except it's resolved using the table below which specifies a number of resources the raider captures (of types of their choice to be stored in **CV** cargo capacity) and damage sustained (to be applied by raiding player to their fleet) based on a die roll. On a roll of '10', no resources are captured or damage is sustained, but the **NPF** base is destroyed. Roll recall for each damaged sustained during a raid. If you raid a base and don't lose a **CV**, earn a victory marker.

| Die roll | Resources captured | Damage sustained on raiding fleet |
|---|---|---|
| 1 | 1 | 4 |
| 2 | 2 | 3 |
| 3 | 3 | 2 |
| 4 | 4 | 2 |
| 5 | 5 | 2 |
| 6 | 6 | 1 |
| 7 | 6 | 1 |
| 8 | 6 | 1 |
| 9 | 6 | 0 |

## 3.5 EXPLORATION

Exploration yields tech markers, politics markers, and a chance to search for life. Each ship can only explore once per turn, and must have an exploration value to do so. Bases and ships stacked with bases can't explore.

If you have the tech *Space mining*, you can also produce resources with **CV**s which are equipped to do this (see 2.6.4 and 3.5.6).

### 3.5.1 Robotic Exploration

Your robotic exploration value is:

> the current exploration value of the world + the exploration value of **RE** being used for exploration (plus any tech modifiers) + any modifiers from world cards based on the type of **RE** you're using.

For each full 10 points of exploration value, you earn a tech marker of the type indicated by the world (Physics, Engineering or Biology). For any remaining fraction of 10 points, roll a die and earn a tech marker if the die roll is less than or equal to the fractional. For example, if exploring Pluto with a 4 exploration value **Rover** (4+8=12), you would earn 2 tech markers on a roll of '1' or '2', or 1 tech marker on any other roll.

**Rovers** explore from the surface of a world. **Orbiters** explore from orbit; however, **Orbiters** orbiting the central world in a planetary system can also explore any other world in that planetary system at -1 value. For example, an **Orbiter** in Jupiter orbit could explore Jupiter at full value, or Io, Europa, Callisto, Ganymede, or the Trojans & Greeks at -1.

**Flyby RE**s explore from transfer and Flyby boxes. For example, a **Flyby RE** in the Jupiter Flyby box or '2' transfer box could explore Jupiter, Io, Europa, Callisto, Ganymede, or the Trojans & Greeks. When a **Flyby RE** explores from a transfer box, subtract the transfer box number from its exploration value (e.g., from the Jupiter '2' box, you would subtract 2, even if the **RE** only had an exploration value of 1). There is no limit to the penalty you could take (you could explore from the '8' box at -8 (i.e., the '2' box with a *+6 Helio* marker), but you may not wish to explore until your **RE** got close enough for a good look at the world it's exploring.

After a **Flyby RE** explores from a Flyby box (even using a **Probe**;

see below), it must immediately make a heliocentric transfer to another planetary system with a higher Heliocentric transfer number (or is destroyed if already in the Alpha Centauri flyby box). This means that **Flyby RE**s will have only one turn to explore a planetary system at full value. For example, a **Flyby RE** that just explored from the Mars Flyby box must make an immediate heliocentric transfer (and roll for engine failure) to the Main Belt, Jupiter, Saturn, or beyond. Instead of going to the lowest possible box for the transfer, you can choose to place the **RE** in a higher box for more turns of exploration. (Note that from Earth, you could launch a **Flyby RE** to Mercury or Venus for its initial exploration before it had to move outwards.)

**Probes** carried by **Rovers** or **Orbiters** must be deployed from the surface or orbit of a world, respectively, to explore that world. Probes carried by **Flyby RE**s must be deployed from a flyby box to explore any world along that heliocentric orbit (e.g., Jupiter flyby box to explore Io, Jupiter, or Callisto). Using a **Probe** counts as the carrier **RE**'s exploration for the turn. **Probes** are always destroyed by the exploration, but the carrier **RE** does not need to roll for malfunction (see 3.5.5). There is no requirement to use a **Probe** for an **RE**'s first exploration, but this is generally a good idea because if the **RE** is destroyed without having used its **Probe**, the **Probe** is also destroyed. **Probes** don't benefit from spectrometers, even if their carrier **RE** is equipped with them.

**Telescopes** always explore from Earth orbit and can explore any world except Alpha Centauri, but add only half the exploration value of the world they're exploring and can't earn missions (see 2.3.5).
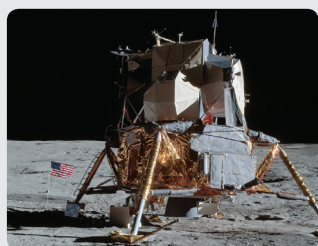


*Stellar Info: The Moon landings used lunar orbit rendezvous, sending the lunar module (right) to the surface, while the orbiter (left) remained in lunar orbit*

### 3.5.2 Crewed Exploration

**CV**s that have exploration values can conduct crewed exploration of most worlds (exceptions: Sun observation, gas giants, Deep Space Astronomy). You can also 'explore' Earth orbit with **CV**s located there. Your crewed exploration value is:

the current exploration value of the world + the exploration value of the **CV** being used for exploration (plus any tech modifiers) + any modifiers from world cards for crewed exploration.

Earning tech markers works the same as robotic exploration, except that if your **CV** has a mobile laboratory, you can roll two dice for your exploration and choose one to keep (note that this has no effect for a modified exploration value of 10, where you just earn a marker).

### 3.5.3 Depletion

For each robotic exploration, whenever an <u>individual</u> tech marker earned has a value of '3', you earn a depletion (max one depletion per exploration even if you draw more than one '3'). For each crewed exploration, whenever the <u>sum</u> of all tech markers earned for an exploration is 3 or higher, you earn a depletion.

When you earn a depletion, reduce the exploration value of the world by 1 (use number markers to indicate current exploration values). Note that you must reveal tech markers earned from exploration, but these can otherwise remain hidden from other players until used. Depletions allow you to:

1. Complete any personal or common mission (see 2.3.5);
2. Draw a world card (see 2.2.2);
3. Search for life (see 3.5.4); and
4. Draw a politics marker.

You can never explore a world that has an exploration value of zero (even if it has world card modifiers).

### 3.5.4 The Search for Life



Life may be rare or abundant in the universe; we really don't know. It is possible that life may thrive even in our own solar system, but it may not be of the form we expect (and intelligent life in our solar system is highly unlikely!). Nevertheless, even finding traces of long-extinct microbes would have enormous implications on the distribution of life in the universe.

Finding life earns you extra politics and tech markers, improves the research value of the world, and earns you the *Signs of life* and *Existing life* techs, which can't be researched directly until another player discovers them (see **Tech Chart**). After another player has discovered them, these techs can be developed like any other.

You conduct a search for life by rolling percentile dice. If you roll less than or equal to the world's life value, you find 'signs of life' (a chemical process or a long-dead microbe) if signs of life hasn't previously been found there (by any player), or existing life if it has. Mark the world's status with a 'Signs of Life' or 'Life' marker. You can't search for life on a world that already has existing life, and you must have the *Signs of life* tech in order to search for existing life on a world that has signs of life. (You may search for *Signs of life* on a world which already has it if you don't yet have the tech, but the world does not earn a second *Signs of life* marker.)

A player that finds signs of life earns 2 Biology tech markers, 1 victory marker, and 1 politics marker immediately. A player that finds existing life earns 4 Biology tech markers, 2 victory markers, and 2 politics markers. A world with signs of life/life also receives an additional +1/+2 tech points production (this has no impact on exploration).
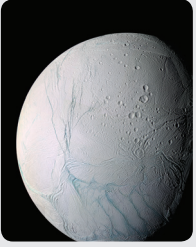
*Stellar Info: Enceladus was added to the short list of places that might support life in our solar system when water geysers were discovered by Cassini*

## 3.5.5 Malfunction & recall

After each robotic exploration, you must check for malfunction by rolling percentile dice. If you roll your current malfunction chance or less (starting at 30% and modified by Severe Radiation/Atmosphere and tech; see 2.6.8, 2.6.9 and **Tech Chart**), the **RE** is destroyed. Instead of checking for malfunction, **Probes** are automatically destroyed after exploration (they're single use), but their carrier **RE** doesn't have to roll for their use. If you lose a **non-probe RE** from malfunction, you immediately earn an Engineering tech marker.

After each crewed exploration (and sometimes after combat and production, see 3.4.6 & 3.5.6), check for recall of the **CV** by rolling percentile dice. If you roll the recall value or less (staring at 50% and modified by tech), immediately reserve the **CV** (see 2.6.6). When your **CV** gets recalled as a result of exploration, production, or combat, you immediately earn a Biology tech marker.

Note that since you will need to roll for malfunction or recall with most explorations, it's easiest to roll 3 dice at the same time whenever you explore: 1 normal die for the exploration itself, and the set of percentile dice for malfunction or recall (or 4 dice if you have a mobile lab).

## 3.5.6 Crew Vehicle Resource Production

If you have the tech *Space mining*, you can produce resources using **CV**s equipped for production (2.6.4) located at worlds that have world cards (even gas giants). You cannot use **CV**s to produce at worlds where you have a base (but other factions could have bases there). A world you're producing at may be fully depleted (i.e., have zero remaining exploration value) or not, but it must have a production value of at least 1 for the resource type you're producing.

Select a resource type to produce. You automatically produce one of that resource. Now roll a die (and subtract 1 if you have the tech *Space refining*). If your modified die roll is equal to or less than the production value of the world (world card + modifiers indicated on the solar system tile) for the resource being produced, you produce an extra resource. If your modified roll is 1 or 0, produce another extra resource. (I.e., you could produce between 1-3 resources, depending on your roll, technology, and the world production value.)

World production values are never depleted, and you can only take resources that you can store in your producing fleet's cargo capacity (you could produce with one **CV** and store the resources on another). After production with a **CV**, roll for recall (and potentially earn a Biology tech marker, see 3.5.5).

During this step, you may also harvest an asteroid marker in a Flyby box with an unrecalled **CV** by converting the asteroid into resources (see 3.1.6). To harvest an asteroid, your **CV** must be equipped to produce, and you must have the tech *Space mining*. Harvesting an asteroid works the same way as **CV** resource production (including the recall roll), except the harvested resource type and amount is determined by consulting the asteroid harvest table (*Space refining* doesn't modify this roll). Earn a victory marker for each asteroid you harvest (2.3.7).

## 3.6 TRADE & BASE CONSTRUCTION

In this phase, players trade and then build & expand bases in initiative order.

### 3.6.1 Trade With Bases

In this step, you can trade with bases provided they have trade markers (see 2.3.6). Trading resources with a base represents trading with the civilian inhabitants of the base, not the base stockpiles. Any resources you sell to a base are destroyed, and any resources you buy weren't previously in the game. However, the resources you sell can come from your base stockpiles and any resources you buy at your base are added to them. Remove the trade marker after a base participates in a trade.

You can trade with your own bases by spending cash (to buy resources) or destroying resources (to earn cash). You can also trade with bases controlled by other factions (even **NPF**) that you have 'Neutral' or better relations with, using a fleet at the same location as the base. If you do this, any resources sold must come from the fleet's cargo capacity, and any resources purchased would occupy the fleet's cargo capacity. If another player wants to trade at one of your bases, you can either refuse the request, or demand that they pay you a **$1B** tariff for the privilege.

The type of resource available for trade and whether you can buy or sell at a base is indicated on the trade marker (see 2.3.6). The maximum number of resources you can trade is restricted to the lesser of a) the number of resources you could trade based on your foreign relations (unlimited for your own bases), and b) the number of resources you could trade based on the base's **Settlements** (see **Faction Sheet**, unlimited for **NPF** bases). For example, at a base with 3 **Settlements**, you can buy up to 4 resources at a cost of **$1B** for every 2 you buy (or any spare 1), or you can sell up to 4 resources and earn **$2B** for each resource you sell.

### 3.6.2 Building & Expanding Bases

You can build a base in Earth orbit or a world that can hold a world card. To do this, you spend **SUP** from the cargo capacity of a **CV** at the intended construction location. The **CV** must be unreserved, have an exploration value, and all **SUP** must come from the cargo hold of a single ship (you can't use the cargo capacity of multiple ships in a fleet). The cost to build a base is indicated on the world's solar system tile, and is reduced by some techs (minimum = 1).

In this step, you can also build and expand facilities (even on the same turn that you built a base if you brought along extra resources). Each base can build or expand only one facility level per turn. (See 2.7.1 for a description of facilities.)

After expanding bases, you may purchase terraforming points (if

you have the required tech, see **Tech Chart**). There is no limit to how many you can purchase in a turn, but increase the cost of each point by +1 **SUP** for each point after the first purchased at a base in a turn (i.e., if they normally cost 4 **SUP** and you buy 4 terraforming points in a turn, you would need to pay 4+5+6+7=22 **SUP**). Mark terraforming points on the **Tech Chart** using number markers (terraforming points on a world purchased by all players are intermixed).

### 3.6.3 End of Game Check
Now check to see if you've fulfilled the ending or victory conditions for the scenario or campaign (see 4.0).

### 3.6.4 Advance Turn Marker
Move the turn marker forward. Congratulations, you're finished the turn!

# 4.0 THE CAMPAIGN

The full campaign requires 8 or more hours to play for experienced players. It has a variable end sometime between 2145 and 2169. Starting in 2145, roll percentile dice during the end of game check (3.6.3). The end of game roll starts at 1% and increases by 1% each year (i.e., 1% in 2145, 2% in 2146, 3% in 2147, etc.). The game ends automatically at the end of 2169 if it hasn't ended before that.

Victory is based on points counted at the end of the game. Victory points are awarded as follows (multiple players can receive the points if tied for an objective):

## CAMPAIGN SETUP
The campaign game starts at the movement phase of the year 2030 (the first thing you'll do is drop ships in transfer boxes). Each player sets up the ships and takes the cash indicated below.

## NORTH AMERICA
**CV**-Orion **(Mars Transfer 1-box)**
**RE**-Sagan **(Kuiper Belt Transfer 8-box)**
**RE**-Feynman **(Venus orbit)**
**RE**-Lowell **(Earth orbit)**
Cash: **$20B**

## RUSSIA
**CV**-Kliper **(Earth)**
**RE**-Kozlov **(Mars Orbit)**
**RE**-Glushko **(Jupiter Transfer 4-box)**
**RE**-Zasyadko **(Saturn Transfer 6-box)**
**LV-2 (Earth)**
Cash: **$30B**

## EUROPE
**RE**-Da Vinci **(Jupiter Transfer 2-box)**
**RE**-Hawking **(Mercury orbit)**
**RE**-Darwin **(Saturn Transfer 5-box)** carrying **RE**-Curie
**RE**-Kepler **(Earth orbit)**
Cash: **$30B**

## JAPAN
**RE**-Tanaka **(Jupiter 3-box)** carrying **RE**-Ito
**RE**-Kimura **(Saturn Transfer 5-box)**
**RE**-Yukawa **(Mercury Transfer 2-box)**
**RE**-Hayashi **(Earth orbit)**
**Cash: $28B**

## CHINA
**CV**-Shenzhou **(Moon orbit)**
**RE**-Fei Xin **(Jupiter Transfer 3-box)**
**RE**-Xu Ganqi **(Saturn Transfer 2-box)**
**RE**-Gan Dei **(Mercury Transfer 2-box)**
Cash: **$27B**

## ASIA
**CV**-Prayas **(Earth orbit)**
**RE**-Rama **(Venus orbit)**
**RE**-Chakrabarti **(Jupiter Transfer 4-box)**
**RE**-Singh **(Saturn Transfer 5-box)**
Cash: **$25B**

## SOUTH AMERICA
**RE**-Caldeira **(Jupiter Transfer 3-box)**
**RE**-Gleiser **(Saturn Transfer 4-box)**
**RE**-Sabato **(Pluto Transfer 6-box)**
**RE**-Humboldt **(Mars)**
Cash: **$26B**

Also do the following at the start of the game:

- Add the decade marker to the decade track, and the year marker to the year track.
- Each player draws a mission, and also draw one common mission (see 2.3.5).
- Set up each player's Biology, Physics, and Engineering bank markers on the Tech Bank (see 2.3.3).

- Add players' faction markers to their position on the initiative track (shifting up to occupy any empty slots for factions not being played).

- Add a faction marker to each technology that you start with, if any (see **Tech Chart**).

- Each player should also add a marker for each other faction (6 total) to the "Neutral" foreign relations slot on their **Faction Sheet**.

Now you're ready to start the game.

## SOLO CAMPAIGN

The campaign is suitable to play solitaire. Choose a single faction to play. Count your score at the end of the game as usual, but subtract 3 points for each turn the game lasts past 2045 (e.g., if it ends in 2046, subtract 3 from your score, if it ends in 2047 subtract 6, etc.). Then rank your performance based on the following table:

| Victory Points | Result |
|---|---|
| Less than 100 | Disaster |
| 100–150 | Defeat |
| 151–175 | Draw |
| 176–200 | Minor Victory |
| 201–225 | Major Victory |
| 226–250 | Brilliant Victory |
| 251+ | Spectacular Victory |

## Campaign Victory Point Chart

| Objective | Victory Points |
|---|---|
| Victory markers | • 1 per marker (5 per '5' marker) |
| Interstellar colonizer techs | • 50 for all three techs,<br>• 30 for two,<br>• or 15 for one |
| Most settlements on terraformed world (can be earned for multiple terraformed worlds) | • 25 for fully terraformed world,<br>• or 10 for a world at least half terraformed |
| Missions | • Sum of earned mission values |
| Exploration of Alpha Centauri | • 15 for CV<br>• 5 for RE (can earn 20 for both CV and RE; no depletion or tech markers necessary) |
| Number of settlements (points per settlement based on location) | • Earth orbit (1)<br>• Moon, Near Earth Asteroids, Mars (1.25)<br>• Mercury, Venus, Main Belt (1.5)<br>• Jupiter, Saturn (1.75)<br>• beyond (2) |
| Settlements on terraformed world | • +0.5 per settlement for fully terraformed world;<br>• +0.25 per settlement on world at least half terraformed |
| Infrastructure | • 1 per non-settlement facility level (e.g., large Refinery counts as 4 points) |
| Undeveloped technology | • -3 per tech not developed (including Interstellar colonizer techs) |
| Extra tech points & politics markers | • 1 for each 20 extra unspent tech points at the end of the game<br>• 1 per 5 unspent politics markers |
| Space fleet | • 0.5 per size value of REs and CVs in operation (REs = 0.5, CV-2 = 1, CV-3 = 1.5, CV-4 = 2, etc.) |

# 5.0 EVENTS

At the start of each economic phase, you'll roll percentiles for an event. Starting in 2100, also roll for a second event (if you get the same event twice, ignore it and don't reroll). Events marked * will have a major impact on the game and should only be played if all players agree (any player can veto; ignore them in that case).

**1-12% PUBLICITY CAMPAIGN:** The player with the lowest (worst) initiative can choose to increase the exploration value one world of their choice by 2 (world must not be fully depleted).

**13-17% INCREASED SPACE BUDGET:** The player with the least earned missions earns **$5B** extra on Earth this economic phase (if multiple players are tied for the least, they all earn **$5B**).

**18-21% MINER STRIKES:** Halve the resource production of bases this economic phase after all modifiers. Add a damage marker to every **Mining Station** and **Refinery** in the game.

**22-25% RESEARCH STRIKES:** Halve the research production of bases this economic phase after all modifiers. Add a damage marker to every **Research Lab** in the game.

**26-29% DOCKYARD STRIKES:** Each player must destroy 2 saved resources of their choice at every base they own. Add a damage marker to every **Supply Station** and **Spaceport** in the game.

**30-35% NATURAL DISASTER:** Roll percentiles to see which world is impacted. Any bases at that world add a damage marker to all non-**Settlement** facilities and destroy half their saved resources of each type. (Ignore this event if there are no bases on the rolled world.)

**36-40% SPACE RACE:** Each player adds up their total number of **Settlements** plus the value of missions they've earned. The player with the lowest total draws 5 politics markers. In the case of a tie, all tied players draw 3 politics markers, unless the tie includes all players (in which case ignore the event).

**41-45% PRIVATE FREIGHT COMPANY:** The player with the fewest Settlements (everywhere) can transfer 5 resources this turn as if they had the technology *Trade Routes*, or if they have the tech, can increase their resource transfer capacity by 5 (if multiple players are tied for the fewest settlements, all tied players can do this).

**46-59% IMMIGRATION:** The player with the fewest **Settlements** (everywhere) can add 2 to any base they control (ignore event if they don't have a base; if multiple players are tied for the fewest settlements, all tied players with a base can add 1 settlement instead).

**60-65% THAWING RELATIONS:** Move all foreign relations one space towards 'Neutral' (only move once for mutual relations between players).

**66-78% SURVEY ERROR:** Roll percentiles to select a world and draw a world card. If the drawn world card can apply to the selected world, add it (replacing any existing card).

**79-83% PIRATE SWARM:** Roll to place an extra pirate this economic phase.

**84-90% BOUNTIFUL HARVEST:** Roll to place an extra asteroid this economic phase.

**91-93% MASSIVE COMET:** increase the exploration value of the comet by 3 (even if fully depleted).

**94% EXTRATERRESTRIAL SIGNALS:** Increase the exploration values of Alpha Centauri and Deep Space Astronomy by 4 each (even if fully depleted).

**95% SOLAR STORM:** Each **CV** not located at a base or Earth takes 1 damage. Roll a die for each **RE** not at a base or Earth and destroy it on a roll of '1' or '2'.

**96%* RUINS OF ANCIENT CIVILIZATION DISCOVERED:** Set Mars' exploration value to 10 (even if fully depleted).

**97%* FIRST CONTACT:** The first player to land a **CV** on Alpha Centauri earns 5 politics markers and 10 victory markers.

**98%* ARTIFICIAL INTELLIGENCE:** Select a random player to designate one off-Earth **RE** controlled by any player to become self-aware (turn it to its 'Reserve' side); that player will direct self-aware **RE**s as a separate faction that moves after all players have moved (without movement restrictions for the **RE**s, using the same Helio transfer rates as the directing player). Self aware **RE**s can't return to Earth, and can be attacked by any player without consequence. Any other **RE**s that come into contact with a self-aware **RE** (i.e., at the same location) also become self-aware, even if stacked with other ships and/or bases. Destroy all self-aware **RE**s before the next economic phase, at which point the player directing them earns 1 victory marker per self-aware **RE**.

**99%* INCOMING:** Trigger the *Incoming* scenario after the current economic phase (with no bonus tech or cash). The asteroid's position is based on the current campaign year instead of the year indicated in the scenario (e.g., it remains at the Main Belt for the first 10 years and then moves to Mars Flyby). If the players win, players earn a victory marker for each 3 points of strength they remove from the asteroid. If Earth gets hit, all players discard all cash, politics markers, and tech markers and points, and skip the next economic phase.

**100%* INVASION:** Trigger the *Invasion* scenario during the next combat step (with no bonus tech or cash). Immediately set all relations worse than 'Neutral' to Neutral. Players can immediately teleport any existing ships they currently have or build in the next turn to Earth orbit to form a fleet that will fight the invader. If the invader wins or the players choose not to fight, all players discard all cash, politics markers, and tech markers and points, and skip the current economic phase. If the invader is destroyed, any player who chose to participate in the defense of Earth earn 5 victory markers for each **CV** they contributed to the battle.

# 6.0 SCENARIOS

Scenarios range in length from about 1 hour to almost the full campaign. Some are co-operative, others are competitive, and many are also suitable for a solo game.

If a scenario specifies a tech level, each player receives all techs up to that column (from left to right on the tech chart, not including *Signs of life/Life*). For example, 'tech level 1' means that you get all the leftmost techs in each field (and don't get any starting techs that you normally would for your faction at the start of a campaign).

Scenarios indicate a starting turn. You can select policies at the start for each decade 2030+ (for example, if a scenario starts in the 2060s, you can select 4 policies at start). Each player starts with the cash indicated. Unless stated, you don't start with any ships. Roll for initiative at the start of the scenario. If the scenario lasts multiple turns, resolve economic phases as usual.

In most scenarios the starting cash is the amount for each player, unless instructed to "split". When "split" is mentioned, the amount is a total and players agree on how to divide the starting amount.

## 1. RACE FOR THE RED PLANET (2032)

(Competitive, 2 hours, 1-7 players, tech level 1, **$40B**)

**Tiles to set up:** Earth, Moon, Near Earth Asteroids, Mars, Phobos/Deimos, Comet, Venus.

The first player to have 20 **Settlements** on Mars wins. All players can blockade and freely attack each other on Mars and in Mars orbit without being at war. If playing solo, you have until the end of 2069 to complete this objective.

## 2. CLASH AT TITAN (2065)

(Competitive, 3 hours, 1-7 players, tech level 3, **$60B**)

**Tiles to set up:** All from the Sun up to and including Saturn and its moons (i.e., not Uranus or beyond), Deep Space Astronomy.

The first player to have 20 **Settlements** on Titan wins. All players can blockade and freely attack each other on Titan and in Titan orbit without being at war. If playing solo, you have until the end of 2099 to complete this objective.

## 3. INCOMING (2061)

(Co-operative, 1-2 hours, 1-7 players, tech level 3, **$40B**)

**Tiles to set up:** Earth, Mars, Main Asteroid Belt.

Earth has just discovered a gigantic asteroid on a collision course! The asteroid starts with a strength of '20' per player ('20' for a solo game, '40' for a 2-player game, '60' for a 3-player game, etc.). Once the value hits '0', the asteroid is considered deflected. You can reduce the asteroid's strength in three different ways (each ship can only do one of these per turn):

- You can "explore" the asteroid. Reduce the asteroid's strength by one tenth of the exploration value, plus 3 (roll for fractions). For example, if you explored it with an **RE** with an exploration value of 2, you'd reduce the asteroid's strength if you rolled a '5' or less (3+2=5). Depletions are never earned for the asteroid, but you do roll for malfunction/recall.

- You can tow the asteroid during the exploration step. Each **CV** that tows the asteroid reduces its strength by the size of the **CV** (2 for **CV**-2s, 3 for **CV**-3s, etc). A **CV** must be unreserved to tow the asteroid, and is reserved after towing.

- You can fire at the asteroid during the exploration step. Roll on the direct-fire table using an <u>unreserved</u> **CV**'s combat value. Reduce the asteroid's strength by the damage inflicted. However, if you roll a '1' or '2', increase the asteroid's strength by 1 instead (for dangerous fragments generated).

**Location of the asteroid by tur**n:

2061-2071: Main belt flyby box

2072-2075: Mars flyby box

2076-2079: Earth flyby box

If the asteroid isn't deflected by the end of 2079, you lose.

## 4. INVASION (2133)

(Co-operative, 30 minutes, 1-7 players, tech level 6, **$80B** to split amongst players)

**Tiles to set up:** Earth.

Players split the cash and build one fleet of up to 7 **CV**s to fight the invader. The invader is considered a size 25 **CV** with a combat value of 30 and 5 drone squadrons. Fight round after round until either the invader or the human fleet is destroyed. Roll a search each round for the humans and the invader: this is automatically successful, but determines tactics points. The invader chooses strike combat if able, and always spends tactics points to increase damage on the human fleet (ignore any spare point). The invader applies any hit it can choose to a randomly selected ship for the combat round (choose a new randomly selected human-controlled ship each combat round or within a round once a previous one is destroyed).

## 5. OLYMPUS MONS (2033)

(Co-operative, 2-4 hours, 1-7 players, tech level 1, **$40B**)

**Tiles to set up:** All from the Sun up to and including Jupiter and its moons (i.e., not Saturn or beyond), Deep Space Astronomy.

Earth's biosphere is collapsing, and it's time for a backup plan. Players must band together to terraform Mars as soon as possible, and transplant at least a part of humanity there. Only one base may be created on Mars. This is co-owned by all players, does not require any maintenance, and has a common resource pool.

Ignore foreign relations effects between players (trade/politics/cash bonuses), but all players are treated as allies, and share common technologies, tech markers, political markers, and a tech bank (the North American special ability doesn't apply if someone is playing them).

The goal is to terraform Mars and have at least 40 **Settlements** there by the end of the game, which varies by the number of players:

Solo (2099); 2 players (2085); 3 players (2075); 4 players (2069); 5 players (2062); 6 players (2059); 7 players (2052).

## 6. EX MACHINA (2062)

(Competitive, 3-6 hours, 2-5 players)

**Tiles to set up:** All.

A splinter group went out to conduct strange experiments on Pluto, and contact has been lost. It seems that a malicious artificial intelligence has taken over the station. Can humanity prevail or escape the solar system before AI takes over? One player plays the AI, while the others play humans. The humans win if they destroy the AI base on Pluto or one player develops all three *Interstellar colonizer* techs by 2120. Otherwise, the AI wins. The AI is considered to be permanently at full war with all human players and **NPF**s, with no obligation on either side to accept any surrenders.

The AI player uses the Japanese faction sheet, ships, and bases. Ignore Japan for all foreign relations purposes. Human players don't get a discount for techs the AI player has discovered, and vice-versa. The AI player can't find or use *Signs or life* or *Life*. The AI player gets to pick policies as usual.

Reduce the initial exploration value of all worlds by 1 at the start of the game. Both sides start with tech level 3, except the AI player also has all techs in a direct line up to and including *Artificial intelligence*. Halve all recall and malfunction rates for the AI player (but the Japan special ability modifier doesn't apply). AI bases cost 2 **ORE** to build, no matter where they're built.

The AI player may never may never produce or acquire **SUP**. All costs that would normally be paid in **SUP** are paid in **ORE** instead. The AI player never receives political markers. AI **CV**s have unlimited range and are free to unreserve (but still require a large enough **Supply Station** or **Spaceport**). Increase the AI player's **RE**, **CV**, and base support limits by 1 each per player

in the game after the first (in addition to Japan's limits). The AI player receives half as much cash and tech points (by type) as the total of all human player Earth production each economic phase (instead of Japanese Earth production). At the start of the game, the human players each receive **$30B**, and the AI player receives half as much as the human player total.

Pluto starts with a small **Spaceport**, and is treated in other respects as a world, eligible to build all types of facilities and produce as usual. The AI player can convert cash to **ORE** or **FUEL** on Pluto. Pluto starts with a *Mixed ice* world card, but this may be changed through exploration. The AI player can use space telescopes in Pluto orbit.

## 7.   REBELLION (2062)

(Competitive, 5-7 hours, 2-7 players, tech level 3, **$40B** for Earth factions, **$30B** for colonials)

**Tiles to set up:** All.

Mars has declared independence from Earth. Can the home planet maintain its grip, or will the flames of revolt spread throughout the solar system? One player runs the colonials, while the others play individual Earth factions. The colonial player uses the South America faction sheet and counter set, but ignores their special ability. They receive half their normal "Earth" production of cash and tech, by type after all modifiers, and don't receive the two free politics markers each economic phase. They can never take any diplomatic space policies. They treat Mars as Earth for all purposes (except movement; e.g., needing to use launch vehicles to leave), but no other players can build bases on Mars. Mars has no exploration value, and never receives a world card.

The colonials start at embargo with all other factions (even **NPF**), and may never have relations above this. Mars may not be attacked or blockaded, and Earth factions may not travel to Mars or Mars orbit. The colonials can never travel to Earth or Earth orbit. The colonials start with a base on Phobos/Deimos with a large **Mining Station** and 12 **ORE**, 7 **SUP**, 4 **FUEL** in stockpiles. Phobos/Deimos is fully depleted and has a *Hematite* world card.

The colonial player can build **Settlements** at their bases for 1 **SUP**, 1 **ORE**, and 1 **FUEL** each, and they double their effective number of **Settlements** for growth (e.g., 25 **Settlements** would be treated as 50 and gain 5). **Settlements** at blockaded colonial bases neither shrink or grow. Earth factions halve their effective number of **Settlements** for growth (but they are counted at full value for losing **Settlements** during blockades).

Game end and victory conditions are the same as for the campaign.

# 7.0 OPTIONAL RULES

These are optional rules you can add to any game.

## MODIFIED STARTING EXPLORATION

For a 4-5 player game, the first depletion at a world does not reduce the world's exploration value (mark it with a number marker after the first depletion equal to the world's starting value). For a 6-7 player game, the first two depletions at a world don't reduce a world's exploration value (turn the number upside-down after the first depletion, and upright after the second).

## INTERPLANETARY MISSILES

You can use **LV**s as interplanetary missiles during the movements phase (maximum 1 **LV** per turn). Fire them at bases you are at war (this consumes the **LV**, even if you have the tech *Reusable launch vehicles*). Each missile deals damage to the base equal to its size (1-4), assigned in an alternating order with the base's owner selecting the first hit.

## AGGRESSIVE PIRATES

Use this option to increase the military tempo of the game. When you roll for pirates, also roll and extra set of dice to add a **NPF CV** to a Flyby box (randomly selected from all armed **NPF** ships of sizes that all players in the game could build). Treat this ship as a pirate in every way (add **$5B** to the pirate cache, etc.). The ship retains its size and combat values. Starting in 2100, roll for a second **NPF CV**.

## UTOPIA

Factions can never embargo or go to war with each other. China starts with *Robotic space policy* instead of *Military space policy*.

## EMBARGO ONLY

Factions can never go to war with each other. They may still embargo.

## NO PIRATES

There are no pirates in the game.

## NO EVENTS

There are no events in the game.

## FUTURISTIC START (2060)

Start after the 2060 economic phase. All players have all techs in the first 2 columns (except *Signs of Life/Life)*, and an extra **$40B**, plus **$3B** for each tech they would have started a 2030 campaign with (e.g., North America starts with 7x **$3B** + **$40B** = **$61B**). Select policies for the 3 missed economic phases. Reduce the initial exploration value of all worlds by 1 at the start of the game.

# 8.0 EXAMPLES OF PLAY

This section contains walkthroughs for some of the game's basic concepts.

## EXPLORATION

Sally is playing North America in a campaign. The game begins in 2030 in the movement phase. The first thing that happens is all players' ships in numbered transfer boxes drop down one box. Sally has two ships in transfer boxes, *Orion* and *Sagan*. *Orion* moves from the Mars '1' to the Flyby box, while *Sagan* moves from the Kuiper Belt '8' (represented by being in the '2' box with a +6 Helio Transfer marker) to the Kuiper Belt '7' box (represented by being in the '1' box with a '+6' Helio Transfer marker).

North America has the best initiative so Sally moves first. She moves *Orion* to Mars orbit, rolling percentile dice to check for engine failure and gets a '79%', which is higher than her engine failure rate of 5% (which is modified to 3% for a **CV-2**), so the move succeeds. Had she rolled '3' or less, *Orion* would have been destroyed, but Sally would have earned 3 free Engineering tech makers. There are no other ships for Sally to move: all are either in their exploring location (*Feynman*, *Lowell*) or still conducting a heliocentric transfer (*Sagan*). Sally is now finished movement, and waits until the other players in lower initiative order to move before continuing her turn.

After all movement is complete, no one has any combat, so Sally is ready to start her exploration. She starts with *Orion*, which can conduct crewed exploration of Mars. She adds the exploration value of Mars (6) to *Orion's* exploration value (5), and then adds 1 for North America's *Improved space suits* tech, arriving at a total of 12. Since Sally earns one tech marker for every 10 points, she earns one Biology tech marker automatically (Mars yields Biology tech). Additionally, Sally gets to roll to try to earn a second tech marker on a '2' or '1', and she gets to roll two dice and choose one of them to keep because *Orion* has a mobile lab. Sally rolls a '4' and a '1', so keeps the '1' roll, earning two markers which she reveals to other players (two '1' Biology markers). If Sally had drawn markers totaling 3 or more in value for crewed exploration, she'd earn a depletion.

She then rolls to check for the possible recall of a crewed vehicle on percentile dice, and gets a '92'. The starting recall rate of 50%, so *Orion* is not recalled. She saves the two Bio marker on the North America **Faction Sheet**, and continues her turn.

Next, Sally looks at *Feynman* in orbit of Venus. Venus has an exploration value of 6, and *Feynman* has an exploration value of 1. She adds these together for a total value of 7. Sally earns a Physics tech marker if she rolls a '7' or less. She rolls a '4', and draws a Physics marker. It's a '3', so she earns a depletion (the value of any single marker must be 3 or higher to earn a depletion for robotic exploration).

If Sally had a mission marker for Venus, she could reveal and

earn it now, but her current mission lies elsewhere. The depletion allows Sally to draw a world card. She draws an *Impact Basin* card. *Impact Basin* requires a rocky world, and Venus is described as a "Rocky volcanic planet", so "rocky" cards are valid. Sally can choose to either apply the *Impact Basin* card to Venus or return it to the deck. She chooses to apply it. She then rolls percentile dice to look for signs of life, and rolls a '3%': an extremely low roll, but not low enough for Venus' sterile 1% chance! Sally then permanently depletes the exploration value of Venus to '5', adding a number marker to indicate the new status. Sally earns a politics marker for the depletion and places it along with her earned tech markers on her **Faction Sheet**. Finally, she checks for malfunction of *Feynman*. She rolls a '22' on percentile dice, which is less than Sally's starting malfunction rate of 30% (see **Tech Chart**), meaning *Feynman* is destroyed. Sally places *Feynman's* counter on her **Faction Sheet**, and draws an engineering tech marker for the loss of the **RE** (failure is a great teacher!).

Next, Sally moves on to *Lowell* in Earth orbit. A space telescope, *Lowell* can explore any world except Alpha Centauri, but at half the world's normal exploration value. Sally decides to explore distant Eris, whose exploration value is halved from 9 to 5, and adds *Lowell's* exploration value of 2, getting a total of 7. Alas, she rolls a '9' for exploration so doesn't earn a Physics tech marker, but at least she rolls a '46%' for malfunction, so *Lowell* isn't destroyed.

## ECONOMIC PHASE

Sally is playing North America, Valentina is playing Russia, and Samantha is playing Europe during the 2040 economic phase. First, they each collect 2 politics markers, however Samantha collects a third because she has *Diplomatic Space policy*. Next, they roll percentile dice for events. The roll is '9%', so Samantha (in worst initiative order) decides to add 2 to the exploration value of Mars. Next, they roll for initiative. Each player rolls percentile dice, with the highest getting the best initiative position. Russia gets the best initiative (#1) and Europe gets the worst (#3).

During the diplomacy step, they roll a ten sided die to shift one faction towards neutral. The roll is a '3' (Europe, based on initial initiative position), so Samantha moves all her foreign relations one space towards neutral. Next, in reverse initiative order, players announce how many politics markers they're spending to try to improve (or worsen) foreign relations. This means that Samantha announces first. She decides to spend one marker to try to increase her relations with Japan (an NPF). Sally goes next and decides to spend one marker trying to improve her relations with Europe. Valentina declines to spend any politics markers on diplomacy. Now all attempts are resolved. Samantha rolls a '7', so she fails to improve her relations with Japan. Sally rolls a '6', so she succeeds, and since relations are mutual, Sally and Samantha both increase their foreign relations with each other by 1 space.

The players then move on to production, collecting money and tech points as indicated in the top left of their **Faction Sheet**, and paying maintenance on any ships and bases in excess of their support limits. They also collect bonus cash for foreign relations, economic policies, and any missions they've earned. If they had any bases, they would also produce with those, and could also transfer resources between bases, and to or from bases and Earth.

Next comes rolling for **NPF** bases, pirates, and asteroids, and picking trade markers. The percentile roll for **NPF** bases is '23%'. They compare that to the planetary tiles and find that 20-26% corresponds to Mars. An **NPF** base would be placed on Mars; however, Mars Flyby has '2050' indicated on it, meaning that no placement can occur there until 2050 or later. Had the roll been, e.g., '13%' instead, a randomly selected **NPF** base would be placed on the Moon. Since it is not yet 2050, the players don't roll for pirates and asteroids, but they would pick random trade markers for any bases in play.

In preparation for the technology step, all players now count up their tech points of each type and discard the markers after recording their saved tech points in the tech bank. Purchasing new techs starts with the player in last initiative position, Samantha. Europe already *Crew vehicles*, but doesn't yet have *Reusable launch vehicles*. However, since North America does have this and is a player in the game, Samantha gets a -3 discount, so buys the tech for 7 engineering points. Sally is next, and decides to purchase *Ultra heavy launch vehicles* for 23 engineering points (25 minus 2 for North America's special ability). Valentina buys *Reusable launch vehicles*, paying only 5 because both Europe and North America now have it, and 5 is the minimum tech cost. Back to Samantha, who decides to purchase *Improved space suits*. Since both Russian and North America have this, Samantha pays only 5 biology tech points. Sally purchases *Short-radius artificial gravity* for 13 points after her special ability. Next, Valentina buys *Advanced astrodynamics* for 12 physics points. Samantha decides she'd like to buy that too, but first she must buy the pre-requisite, so she purchase *Orbital rendezvous* for 5. Sally is up next, and she purchases *Trade routes* for 13. Valentina is next, but doesn't have enough tech points to buy and technologies, so she passes. This means that even if she wanted to or was able to buy other techs later, she couldn't. So, back to Samantha who buys *Advanced astrodynamics* for 9 physics points. Then back to Sally who passes. Samantha buys one final tech, *Short-radius artificial gravity*, for 9 biology points, and then passes. Since all players have passed, the tech step is over.

Valentina has a space station in Earth orbit with 2 **Settlements**, so she rolls now for settlement growth. She's lucky and rolls a '2', so her settlement grows and she now has 3 at her base. Last, all three players select a new policy in reverse initiative order. The economic phase of 2040 is now over.

## COMBAT

The year is 2107 and a pair of Chinese destroyers, *Yangtze* and *Huang He*, are taking on the Japanese carrier *Hiryu* in open space. Both sides have *Advanced space weapons* (+3), and Japan has *Fighter drones* and *Bomber drones*. The Chinese announce a search. Both players roll search dice for their fleets. The Chinese fleet needs a '5' to find (4+1 for the extra **CV**). Japan also finds on a '5', but subtracts 1 from their search roll for *Hiryu's* drones. Japan rolls a '5' (modified to 4), and China rolls a '7', which means that only Japan finds. Both sides calculate their tactics points. China has 4 for Japan's roll, plus 1 for *Advanced space missiles*, plus 1 for *Hiryu's* size (7), for a total of 6. Japan has 7 for China's roll, plus 2 for *Command & control* (not cumulative with *Advanced space*

*missiles* because these are attached), plus 1 for the sum of *Yangtze* and *Huang He's* size (10), for a total of 10. Japan can spend the difference of 4 tactics points (10-6).

Japan could use these points to call off the combat (3), or call a direct-fire combat (1), but Japan wants to teach China a lesson and *Hiryu* is better fighting at a distance (strike). Both sides add up their combat values. Japan's combat value is 7 (*Hiryu*) + 3 (*Advanced space weapons*) + 1 (for China's 2 ships) = 11. China's combat value is 10 (*Yangtze + Huang He*) + 3 (*Advanced space weapons*) = 13. Both sides will roll a die on the strike table for damage, and Japan decides to use the 4 tactics points to increase damage on China by 2. Japan designates 1 of *Hiryu's* drone squadrons to fly in defense (-1 damage on Japan), and 2 to fly as bombers in attack (+2 damage on China).

Damage on both sides is determined simultaneously, but applied to China first. Japan rolls a '5', so cross-references the 11+5=16 row, which results in 5 damage. However, this is increased by 2 for tactics points spent, and 2 for *Hiryu's* bombers, to a total of 9 damage. China rolls a '10', so cross-references the 13+10=23 row, which results in 7 damage. However, this is reduced by 1 for *Hiryu's* fighter squadron flying in defense, to a total of 6 damage.

For applying damage during strikes, target selection alternates with the firing player choosing first. Hits are applied on China as follows: *Yangtze* (1; Japan), *Huang He* (2; China), *Yangtze* (3; Japan), *Huang He* (4; China), *Yangtze* (5; Japan), *Huang He* (6; China), *Yangtze* (7; Japan), *Huang He* (8; China), *Yangtze* (9; Japan). This last hit chosen by Japan is the 5th on *Yangtze* (size 5), so *Yangtze* is destroyed. *Huang He* is on its last legs too, having taken 4 damage. However, *Hiryu* must absorb all 6 damage inflicted by China (size 7), so it's not much better off. In fact, if they were to fight again, both ships would have combat values of 1 (+3 for *Advanced space weapons*), and *Hiryu* would have no usable drone squadrons.

Since Japan destroyed a Chinese **CV**-5, they earn 2 victory markers. Since China lost a **CV**-5, they earn 2 engineering markers. *Huang He* must roll to check for recall 4 times for damage sustained, and *Hiryu* must roll 6 times. Both ships are likely to need of some serious R&R.

## RUSSIA 2030 START (EXPLORATION, BASES, TRADE)

Valentina is playing Russia in a campaign. She owns **CV**-*Kliper* on Earth (along with an **LV**-2), **RE**-*Kozlov* in Mars orbit, **RE**-*Glushko* in the Jupiter 4-transfer box, and **RE**-*Zasyadko* in the Saturn 6-transfer box. The game begins in 2030 in the movement phase. The first thing that happens is all players' ships in transfer boxes drop down one box. Valentina has two ships in transfer boxes, *Glushko* and *Zasyadko*, so she drops them to the Jupiter 3-box and Saturn 5-box, respectively. *Kozlov* is an orbiter, so Valentina will leave it in Mars orbit to explore.

With *Kliper*, Valentina wants to build a base in Earth orbit (the cost is 2 **SUP** (supplies), as indicated on Earth's world box). So, Valentina purchases 2 **SUP** using her **$30B** starting cash, leaving her with **$28B**. Then Valentina launches *Kliper* on her **LV**-2, rolling for engine failure with percentile dice. Thankfully, her roll

is well higher than the 3% that would destroy the **LV**-2 along with *Kliper* (initial engine failure rate of 5% minus 2% for *Kliper*, a size-2 **CV**). Because Valentina doesn't have the technology *Reusable Launch Vehicles*, the **LV**-2 is automatically destroyed, but *Kliper* makes it to orbit safely with its cargo.

After movement comes exploration. Valentina explores Mars with *Kozlov*, with a value of 8 (2 for *Kozlov's* exploration value + 6 for Mars). She rolls her two percentile dice for malfunction at the same time as the single d10 for exploration. She rolls a '7' with the exploration die, so she earns a randomly-drawn biology tech marker from the pool. For malfunction, she rolls a '57%', high enough to avoid failure (initial malfunction rate = 30%). The biology marker drawn is a '2', not enough to earn a depletion on Mars. Next, Valentina checks her other **RE**s. Since *Zasyadko* is a Flyby explorer, she could choose to explore any world in the Saturn system with a -5 modifier for the ship's current transfer box, but Valentina decides to wait to get closer and have a better chance. Next, Valentina could explore Earth orbit with *Kliper*, but chooses not to because this could result in a recall being rolled, which would mean that *Kliper* would have to flip to its 'reserved' side and would not be able to build a base.

Announcing all her exploration complete, the turn moves on to the trade & base construction phase. Valentina spends the 2 **SUP** in *Kliper's* cargo hold to build a base (the cost indicated on Earth's world tile), and adds the space station *Mir* to Earth orbit, stacked with *Kliper*. Now she is finished her 2030 turn.

At the start of 2031, eager to expand her new base as soon as possible, Valentina decides to invest in a new ship, **CV**-*Renda* during the build & service phase. This ship costs 5 **ORE** + 1 **SUP** + 2 **FUEL**, but since Valentina is planning to use *Renda* simply to ferry resources, she decides to build the ship in its 'reserved' status (-1 **SUP**, -1 **FUEL**). The resulting cost of 5 **ORE** and 1 **FUEL** is paid for as **$6B** on Earth, leaving her with **$22B**. She also buys a new **LV**-2 to launch *Renda* for **$3B** (1 **ORE** + 2 **FUEL**), and purchases 2 **SUP**, 2 **FUEL**, and 2 **ORE** for *Renda's* cargo hold, leaving her with **$13B**. (Note that since *Renda* doesn't have an exploration value, it cannot build bases, but it's perfect for shuttling resources around.)

Next, during the movement phase, Valentina drops *Glushko* and *Zasyadko* to the Jupiter 2-box and Saturn 4-box. Then Valentina launches *Renda* into Earth orbit, rolling a '11%' for engine failure (phew, safe!). Note that *Renda* can dock with the space station *Mir* as part of its move, and doesn't need to roll again for engine failure to do so — but it does need to stop moving after it docks. *Renda* will transfer its resources to *Mir* at the start of the next phase (the Combat Phase, even though there will be no combat in 2031). *Kliper* is still docked with *Mir*. Valentina would like to explore with the ship in 2031, but it won't be able to explore unless it makes a move to undock first (it couldn't even explore Earth Orbit unless it did this). Valentina therefore decides to send *Kliper* to the Moon. She rolls a '4%' for engine failure — a close call, but thankfully just above the 3% failure chance for a **CV**-2.

During the exploration phase, *Kliper* explores the Moon with an exploration value of '10' (5 for *Kliper* + 4 for the Moon + 1

for the tech *Improved space suits*). Valentina automatically earns one engineering marker (a '1') and rolls two percentile dice for recall. The result is '12%' for recall. Since this is below Valentina's recall rate (50% at start - 5% for Russia's special ability = 45%), *Kliper* is recalled, flipping over to its 'reserved' side. Valentina earns a biology marker for the recall (a '3'). She decides again not to explore with *Zasyadko* out at Saturn. Finally, Valentina explores Mars again with *Kozlov*, this time rolling a '5' for exploration and a '22%' for malfunction (below 30%). Valentina destroys *Kozlov* but earns an engineering marker for the malfunction. Since her exploration roll was '8' or less, she earns an a biology marker. This turns out to be a '3', so it triggers a depletion.

Valentina permanently reduces the exploration value of Mars from '6' to '5'. Since *Kozlov* is equipped with a spectrometer, Valentina draws two world cards instead of one. She draws *C-Class asteroid* (not eligible, requires minimal gravity) and *Hematite* (ok, since Mars is Rocky). She could add the *Hematite* card to Mars, but since she doesn't plan to explore Mars again (now that *Kozlov* is destroyed) and other factions are snooping around the planet, Valentina decides to discard *Hematite* and leave Mars without a world card for now. Valentina now rolls to search for life. The roll is a '4%' — well below the 12% needed to find life on Mars. (Maybe Valentina isn't so unlucky after all!) Since this is the first time life has been found on Mars, Valentina adds a '*Signs of Life*' marker to Mars, which permanently increases the research value of Mars for bases established there. Since Valentina discovered signs of life, she immediately earns this technology for free (other factions can buy it during an economic phase). She also immediately earns 2 biology tech markers, 1 victory marker, and 1 politics marker. Finally, Valentina draws a second politics marker for the depletion of Mars itself.

At the end of 2031, in the Trade and Base Construction Phase, Valentina uses the resources *Renda* brought to *Mir* to build a **Small Supply Station** for 1 **ORE** and 1 **FUEL**. Then her turn is complete.

In 2032, Valentina could rebuild *Kozlov* or another **RE**, but instead she decides that she'll focus her remaining cash on building up *Mir*. She doesn't build anything this turn.

Valentina once again drops *Glushko* and *Zasyadko*, to the Jupiter 1-box and Saturn 3-box. During movement, Valentina returns *Renda* to Earth, rolling a '76%' for a safe landing. Now that *Mir* has a **supply station** stocked with **SUP** and **FUEL**, *Kliper* will be able to return to *Mir* to restock. She rolls a '43%' for a safe docking. This turn, Valentina decides to explore with *Zasyadko*. Since she can explore any world in the Saturn system, she picks Titan. Her exploration value is 8 (8 for Titan + 3 for *Zasyadko* – 3 for the transfer box). She rolls a '6', so collects a biology marker for Titan (a '2' — no depletion). Her malfunction roll is '85%' — no malfunction. At the end of 2032, Valentina builds a small research station on *Mir* for 1 **ORE** and 1 **SUP**.

In the Build & Service phase of 2033, Valentina purchases another **LV**-2 (**$3B**) and 2 **ORE**, 2 **SUP**, and 2 **FUEL** (**$6B**) to add to *Renda's* cargo hold leaving her with **$4B**. Next, she uses the remaining 1 **SUP** and 1 **FUEL** at *Mir* to unreserve *Kliper*,

flipping it over. Then, during the Movement Phase, she drops *Glushko* and *Zasyadko*, to the Jupiter Flyby box and Saturn 2-box. During movement, she moves *Glushko* (an orbiter) to Europa orbit (rolling a '43%' for engine failure), launches *Renda* to *Mir* (rolling a '24%' for engine failure), and then tries to move *Kliper* back to the Moon to explore. She rolls for engine failure on *Kliper* and —**ouch**— rolls 3%! *Kliper* is destroyed, but as compensation Valentina draws 3 random engineering tech markers. At least the Russian engineers will learn something from their mishap...

During the exploration phase, *Glushko* explores Europa from orbit. Europa already has a **Water Ice** world card thanks to another faction, but has been depleted to an exploration value of '5'. *Glushko* explores with a value of '8' (1 *Glushko* + 5 Europa +2 **Water Ice** for orbiters). Sadly, Valentina rolls a '9' so fails to earn a tech marker, but luckily she rolls a '71%' for malfunction, so *Glushko* survives (even with the extra +10% malfunction modifier for severe radiation, making a 40% chance). Next, Valentina decides to again explore Titan with *Zasyadko* (modified exploration = '9' from Saturn's 2-box), but rolls a '10' so she again fails to earn a marker. Worse, her malfunction roll is '13%', so *Zasyadko* is destroyed. She earns an engineering marker for the malfunction (a '3'). Russian engineers are having a bad day!

Meanwhile, *Renda* has successfully unloaded her cargo at *Mir*, so during the Trade & Base Construction Phase Valentina decides to build a settlement (2 **ORE**, 2 **SUP**, 1 **FUEL**).

In 2034, Valentina explores Europa with *Glushko* again and returns *Renda* to Earth. But with only **$4B** left, there isn't much left for her to do until the next economic phase in 2040. However, Valentina has already made good progress. The **Supply Station** at *Mir* will be useful for unreserving ships so they don't need to return to Earth. The **Research Station** will produce 3 tech points of any type Valentina wishes every economic phase, and since *Mir* has a **settlement**, she will be able to draw a trade marker in 2040 and then buy resources at the base for a discount or sell resources at the base for profit (maximum 2 resources with 1-2 settlements; see **Faction Sheet**). (Other players could also trade at *Mir* by moving cargo ships to the base, but only if Valentina agrees, trade is permitted by the factions' mutual foreign relations, and the other player pays Valentina a **$1B** tariff.) Additionally, Valentina will now roll for settlement growth and may thus earn additional settlements for free (on a roll of '1' with only a single settlement, but improving chances as *Mir* grows). Lastly, *Mir* and its facilities will earn Valentina points at the end of the game.

# 9.0 PLAYER'S NOTES

## NORTH AMERICA

You start with the best technology and excellent ships. Get out there, explore, and colonize, and try to maintain your lead if you can.

## RUSSIA

Your strengths are resource transport and robust crews. You might want to build a space station in orbit right away with *Kliper*, drop a **Research Station** for the free tech, a **Supply Station** to refuel your ships (why build launch vehicles?), and maybe even a few **Settlements** for their trade and production benefits. You also have a great cargo ship from the start (*Renda*), which you should build on its reserved side for the 1 **SUP** and 1 **FUEL** savings (since *Renda* has no exploration value, she can't build bases anyway, but could trade with other faction's bases if you unreserved her). Launching *Renda* on **LV**-2s (especially once you get *Reusable launch vehicles*) will let you stock up your bases on the cheap.

## EUROPE

You have the best research and space telescopes. Your **RE**s are top-notch, but **CV**s are also among the best, so you'll probably want to adopt a balanced approach.

## JAPAN

You have the best ships, but they're also the most expensive. You'll want to choose quality over quantity, and aim to reduce your already low malfunction rate. Flood the solar system with robots to try to establish a technological lead over your rivals. But don't forget bases and crew vehicles. One good Japanese ship is worth 3 from another faction... right?

## CHINA

You can support more ships than most, and don't have to worry as much about falling behind because you can always reverse engineer technologies you don't have. You have the best military position, so don't let anyone push you around. Even the threat of force can make your opponents look over their shoulder.

## ASIA

Your strengths are production and trade, so build bases early and often. You can support the most ships and bases, and yours are cheap. Swarm the solar system with as many ships as you can: quantity has a quality all its own.

## SOUTH AMERICA/AFRICA

Your strengths are diplomacy and trade, so make lots of friends and profit from them. Your ships are average but you can build lots of them. Build bases and use your equatorial launch sites to stock them up quickly.

# 10.0 CREDITS

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# STELLΛR HORIZⱭNS

# STELLΛR HORIZⱭNS
# TECHNOLOGY TREE

## BIOLOGY

**Signs of Life** 10 — Must have been located by another Faction. Earth Production +2 Biology Tech Points

**Existing Life** 15 — Must have been located by another Faction. Earth Production +3 Biology & 2 Physics Tech Points

**Terraforming** 25 — Terraforming Points Costs x4

**Genetic Engineering** 30 — You can buy Biology Tech points for $1B, or sell 2 for $1B

**Short Radius Artificial Gravity** 10 — Recall Rate: 45% (initial: 50%)

**Space Habitation** 15 — Base Cost -1

**Space Mining** 15 — Crew Vehicles with Production capabilities can produce Resources

**Improved Space Habitation** 25 — Base Cost -2

**Space Refining** 25 — Subtract 1 from your CREW VEHICLE Production die roll

**Advanced Space Habitation** 30 — Base Cost -3

**Atmosphere Processing** 35 — Terraforming Points Costs x3

**Space Operations** 20 — Recall Rate: 40%

**Improved Space Operations** 25 — Recall Rate: 35%

**Advanced Space Operations** 25 — Recall Rate: 30%

**Improved Space Medicine** 30 — Recall Rate: 25%

**Advanced Space Medicine** 30 — Recall Rate: 20%

**Interstellar Colonizer Habitation** 50 — Victory Condition (See Rules)

**Improved Space Suits** 10 — Crew Exploration +1

**Mechanical Counterpressure Suits** 25 — Crew Exploration +2

**Advanced Life Support** 30 — Crew Vehicle Range: 2

**Advanced Exploration Concepts** 30 — Crew Exploration +3

**Closed Cycle Life Support** 40 — Crew Vehicle Range: 4

**Advanced Crew Vehicles** 40 — Crew Exploration +5

**Safe Crew Hibernation** 40 — Crew Vehicle Range: Unlimited

## PHYSICS

**Orbital Rendezvous** 10 — Crew Vehicles can travel to the Moon and Near Earth Asteroids

**Advanced Astrodynamics** 15 — Crew Vehicle Range: 1

**Trade Routes** 15 — You can transfer up to 5 Resources after production (See Rules)

**Long Duration Space Flight** 30 — Crew Vehicle Range: 3

**Pressure Shell** 30 — Your ships can ignore effects of Severe Atmospheres

**Deep Space Exploration** 40 — Crew Vehicle Range: 5

**Active Radiation Shielding** 20 — Your ships can ignore Radiation effects

**Improved Trade Routes** 30 — You can transfer up to 10 Resources after production (See Rules)

**Advanced Trade Routes** 30 — You can transfer up to 15 Resources after production (See Rules)

**Improved Space Weapons** 10 — +1 to Attack Roll in Combat

**Advanced Space Weapons** 20 — +3 to Attack Roll in Combat

**Matter-Energy Conversion** 30 — You can buy Physics Tech points for $1B, or sell 2 for $1B

**Energy Focusing** 30 — +5 to Attack Roll in Combat

**Interstellar Colonizer Engine** 50 — Victory Condition (See Rules)

**Ion Engines** 10 — Heliocentric Transfers x 0.9

**Plasmadynamic Propulsion** 15 — Heliocentric Transfers x 0.8

**Fission-Fragment Engine** 20 — Heliocentric Transfers x 0.7

**Fusion Rockets** 25 — Heliocentric Transfers x 0.6

**Practical Anti-Matter** 30 — Heliocentric Transfers x 0.5

**Advanced Anti-Matter** 30 — Heliocentric Transfers x 0.4

**Hyperadvanced Propulsion** 35 — Heliocentric Transfers x 0.2

## ENGINEERING

**Crew Vehicles** 10 — You can build CV-2 and LV-3 Vehicles

**Large Crew Vehicles** 20 — You can build CV-3 Vehicles

**Frigates** 30 — You can build CV-4 Vehicles. Engine Failure Rate is 3%

**Destroyers** 30 — You can build CV-5 Vehicles

**Cruisers** 30 — You can build CV-6 Vehicles

**Battleships** 30 — You can build CV-7+ Vehicles

**Reusable Launch Vehicles** 10 — Launch Vehicles are not Destroyed if you roll above 25%

**Ultra-Heavy Launch Vehicles** 20 — Engine Failure Rate is 4% (initial is 5%). You can build LV-4 Vehicles

**Space Elevator** 30 — Treat Ships in Orbit as if they were on a World's Surface (See Rules)

**Space Heavy Transport** 40 — Crew Vehicle Cargo Capacity x2. Doubles LV Resource Cargo Capacity

**Interstellar Colonizer Hull** 50 — Victory Condition (See Rules)

**Improved Component Design** 15 — Malfunction Rate is 27% (initial is 30%)

**Advanced Component Design** 20 — Malfunction Rate is 24%

**Quantum Computing** 25 — Malfunction Rate is 21%. Robotic Exploration +1

**Advanced Quantum Computing** 30 — Malfunction Rate is 18%. Robotic Exploration +2

**Nanotechnology** 30 — You can buy Engineering Tech points for $1B, or sell 2 for $1B

**Artificial Intelligence** 40 — Malfunction Rate is 15%. Robotic Exploration +3

**Space Missiles** 10 — Your ships with Attack Values can fire in Strike Combat

**Advanced Space Missiles** 10 — +1 to Combat Tactics Points

**Fighter Drones** 15 — Crew Vehicles and Defense Networks can use Fighter Drones (See Rules)

**Command & Control** 15 — +2 to Combat Tactics Points

**Bomber Drones** 20 — Crew Vehicles and Defense Networks can use Bomber Drones (See Rules)

| 0 | | |
|---|---|---|
| 1 | 2 | 3 |
| 4 | 5 | 6 |
| 7 | 8 | 9 |
| 10 | 11 | 12 |
| 13 | 14 | 15 |
| 16 | 17 | 18 |
| 19 | 20 | 21 |
| 22 | 23 | 24 |
| 25 | 26 | 27 |
| 28 | 29 | 30 |
| 31 | 32 | 33 |
| 34 | 35 | 36 |
| 37 | 38 | 39 |
| 40 | 41 | 42 |
| 43 | 44 | 45 |
| 46 | 47 | 48 |
| 49 | 50 | 51 |
| 52 | 53 | 54 |
| 55 | 56 | 57 |
| 58 | 59 | 60 |
| 61 | 62 | 63 |
| 64 | 65 | 66 |
| 67 | 68 | 69 |

# STELLAR HORIZONS

# STELLAR HORIZONS
# POLICY TREE

| | | |
|---|---|---|
| **Space Settlement** | **Vigorous Space Settlement** | **Unified Space Settlement** |
| Base Support Limit +1 | Base Support Limit +2 | Roll extra die for Settlement Growth |
| **Space Diplomacy** | **Vigorous Space Diplomacy** | **Unified Space Diplomacy** |
| Draw 1 Extra Politics Marker | Draw 2 Extra Politics Markers | Politics Markers are worth 3 Tech Points |
| **Military Policy** | **Vigorous Military Policy** | **Unified Military Policy** One Unified Policy Only |
| You can declare Embargoes +20% to Initiative Roll | You can declare Wars +40% to Initiative Roll | +2 to Combat Tactics Points +50% to Initiative Roll |
| **Human Policy** | **Vigorous Human Policy** | **Unified Human Policy** |
| Crew Vehicle Support Limit +1 | Crew Vehicle Support Limit +2 | Crew Vehicle Support Limit +3 |
| **Robotic Policy** | **Vigorous Robotic Policy** | **Unified Robotic Policy** |
| Robotic Explorer Support Limit +1 | Robotic Explorer Support Limit +2 | Robotic Exploration +1 |
| **Space Economics** | **Vigorous Space Economics** | **Unified Space Economics** |
| +$2 B Earth Production | +$4 B Earth Production | +$8 B Earth Production |

# 11.0 COMBAT TABLE

| Direct Fire Value (+1 d10) | Damage Inflicted | Strike Value (+1 d10) |
|---|---|---|
| 4 or less | 0 | 6 or less |
| 5-7 | 1 | 7-8 |
| 8-10 | 2 | 9-10 |
| 11-13 | 3 | 11-12 |
| 14-15 | 4 | 13-15 |
| 16-17 | 5 | 16-18 |
| 18-19 | 6 | 19-21 |
| 20-21 | 7 | 22-24 |
| 22-23 | 8 | 25-27 |
| 24-25 | 9 | 28-29 |
| 25 | 10 | 30-31 |
| 26 | 11 | 32-33 |
| 27 | 12 | 34-35 |
| 28 | 13 | 36-37 |
| 29 | 14 | 38-39 |
| 30 | 15 | 40-41 |
| 31 | 16 | 42-43 |
| 32 | 17 | 44-45 |
| 33 | 18 | 46-47 |
| 34 | 19 | 48-49 |
| 35 | 20 | 50-51 |
| 36 | 21 | 52-53 |
| 37 | 22 | 54-55 |
| 38 | 23 | 56-57 |
| 39 | 24 | 58-59 |
| 40+ | 25 | 60+ |

Chance to find in a search = 4. Increase chance to find (but don't modify search roll or tactics points) for each **CV** after the first in either fleet.

Subtract 1 from your search roll if you have any drone squadrons, or 2 if you have 5 or more drone squadrons (with *Fighter Drones* tech).

*Modifiers (choose whether your drone squadrons are flying as fighters or bombers):

- Add to your combat value any tech modifiers, and +1 for each unit in the opposing fleet after the first
- During strike with *Fighter Drones* tech, each drone squadron flying as a fighter decreases damage on you by 1
- During strike with *Bomber Drones* tech, each drone squadron flying as a bomber increases damage on opponent by 1

## TACTICS POINTS:

- Earn your opponent's search roll (+1 per full 7 of enemy **CV** size).
- Spend 1 to choose direct-fire instead of strike.
- Spend 3 to avoid combat.
- Spend 2 to increase damage inflicted or decrease damage received (per point of damage).
- Spend 1 to select a target to receive damage instead of your opponent.
- Assigning damage alternates between inflicting and receiving player, with inflicting player selecting first for strike or receiver first for direct-fire. You can screen ships and bases to exclude them from combat in direct-fire but not strike combat.