

SATURNIAN SETTLERS

MISSION BRIEF + INSTRUCTIONS



Game Credits: Ann Adair, Ashle Thompson, Bill Shaw, Jon Adair

MISSION BRIEF

After much planning and preparation, it is finally time for the Titan 3023 crew, the Saturnian Settlers, to execute the mission. The Saturnian Settlers have landed on Titan, Saturn's icy moon, with the intentions to establish human settlements and advance society through exploration.

Each round of Mission: Titan 3023 has different priorities but it is up to the Saturnian Settler's decision makers to decide what choices are made at each phase to sustain human life on a Saturnian satellite.

Space exploration is controlled by a global alliance called the Consolidated Earth Space Agencies of Earth (CESA). CESA provides the funding from its member states and has seeded the settlement mission by launching a series of rockets containing the essential settlement structures needed to bootstrap the settlement. They have also secured funding for seven supply missions to provide critical resources and additional settlers to the settlement.

Our settlers are about to embark on the journey of a lifetime to Titan where they intend to establish the first human settlement beyond the asteroid belt! Will they succeed? Their fate lies in your hands and in the choices you make on production and resource allocation both on Earth and within the settlement. Good luck!

OBJECTIVE

Saturnian Settlers is a turn-based space mission simulation game designed for 1-4 players. The goal is to provide an entertaining experience while educating players on the challenges faced by settlers trying to establish a self-sustainable colony on a distant moon or planet. Our destination is Titan, one of the major moons orbiting Saturn. It is played over a number of rounds.

The game is set in the far future. Humanity has overcome many of the challenges they faced in the early industrial and technology ages. Our settlers live in a time where science and technology have advanced sufficiently to enable discovery and exploration of the solar system. Society on Earth and the inner planets are still challenged by the issues we face today where politics, personalities, and nature keep life interesting.

IMPORTANT VOCABULARY

Rounds

The game is played in 7 rounds with supply ships plus additional rounds as needed until the players win (complete the self-sustaining settlement) or lose (run out of resources). Each round has a specific sequence of actions and events. Some of these actions may be skipped depending on the state of the game. For example, in the first round, the settlement has produced no resources, so there is no need to harvest resources.

Turns

Two actions during a round allow players to take turns conducting actions. Starting with the *First Player*, players proceed in clockwise order to place resources on building tiles and the supply ship. Within a round, turn order is preserved. So if Player 2 was the last one to place resources on a building, Player 3 would be the next player to become the active player when placing resources on the supply ship.

Settlers

Settlers are portrayed by the space meeples. Settlers are required to maintain a healthy self-sufficient settlement.

In the basic game, All of our settlers are multi-talented and can function in any role required by the settlement. Therefore, when we need farmers, engineers, biologists, or any other skill, anyone available can step in to help.

In a more advanced game, settlers will specialize. The different colored meeples indicate their specialty. Any meeple can be used if no special skill is expected. The unspecialized meeples are referred to as settlers in the building tile inputs.

Active Building Tile

A building tile is active if it has all the resources needed to produce or resources or sustain its function if no resources are produced by that tile. At least one MANDATORY building tile of each is required every round or the settlement immediately collapses. The RBA doesn't need resources but it must have power. If during the course of a round a building transitions from active to inactive, resources and settlers on that building tile are permanently lost.

Mandatory Building Tile

Certain building tiles are mission-critical for the settlement. If at the end of a round, the settlement hasn't activated at least one of each type of the mandatory building tiles, the settlement collapses. For the Fusion Generator and the Habitat Module, if the number of buildings and/or settlers exceeds the capacity of these buildings, the following consequences occur:

1. Not enough Fusion Generators for all ACTIVE building tiles.
Players have to decide which building tile is deactivated.
Resources and settlers assigned to this building tile are immediately lost and removed from the settlement.
2. Not enough Habitat Modules to support the population. Players remove excess settlers from the settlement. They are first removed from the *Control Console* and then from building tiles.
3. Not enough power to the Robotic Building Assembler. Even when idle, it must have power to maintain its readiness. It doesn't

need resources unless the players wish to create a new building tile.

Refer to the section on *Active Building Tiles* if a building tile transitions from active to inactive.

If players can't decide within a reasonable time which buildings will be affected, the last *Active Player* is empowered to make a final decision.

Active Player

During resource placement actions, the person currently placing resources is considered the active players. Other players can give input to decisions made by the active player but the final decision is with the active player. The active player role rotates around the table to the player who is currently placing resources. The last player to place a resource remains the active player until the round ends or another resource placement action occurs.

First Player

At the beginning of a round, the person holding the Active Player Token is the first player to initiate placement actions and is designated the active player.

CONTENTS

For setup and game play, you'll need:

- 1 Mission brief + Instructions (this document)
- 1 Resource Management Quick Reference
- 4 Player Turn Reference Cards
- 1 Control Console

- 1 First Player Token
- 2 identical Supply Ships
- 3 of each Building Tile
- 29 Event Cards
- 80 assorted space meeples
 - 20 Engineers
 - 20 Biologists
 - 40 Settlers
- 50 of each resource token
 - Regolith
 - ice/water
 - Nitrogen
 - Energy
 - Food
 - oxygen

COMPONENTS

BUILDING TILES

Building tiles provide the foundations of the settlement. Building tiles are activated if they are provided with all input resources and enough Fusion Generator capacity exists to provide it with power. They include structures to support the settlers, harvesting of natural resources, and converting resources into other resources necessary to sustain the settlement.

Mandatory building tiles are critical to the survival of the settlement. If zero of any mandatory building tile types are not activated in the current turn, the game ends immediately and the settlement collapses.

To activate a building tile, each tile requires resources and power to function. Some produce new resources and some simply exist to ensure the settlement's survival.

(pictures of tile)

Habitat Module (MANDATORY)

A Habitat Module can house up to 20 settlers. It consumes 3 ice, 3 oxygen, and 3 food resources per round. It produces no resources.

(pictures of tile)

Fusion Generator (MANDATORY)

The Fusion Generator converts fuel resources into energy used by the settlement to power other structures. Each can power 10 other Building Tiles with one important exception. The Robotic Building Assembler consumes energy equivalent to four building tiles. It produces no additional resources. If there isn't enough capacity to power all of the buildings, players must choose which buildings to abandon and any resources, including settlers, placed on those buildings are permanently lost.

(pictures of tile)

Robotic Building Assembler (MANDATORY)

The Robotic Building Assembler (RBA) enables the creation of new building tiles. This function is critical for expanding the settlement and, over the long-term, replacing aging structures. It is a mission-critical piece for a self-sustaining settlement.

When provided with 2 engineers, 2 settlers, 2 energy, and 4 regolith resources, it is capable of producing one new building. The building is chosen by the active player when the resources are placed. Because the RBA is massive compared to other building tiles, building an additional RBA requires two fully resourced rounds to complete. The rounds don't have to be consecutive.

(pictures of tile)

Ice Driller

Subterranean water exists on Titan. Unfortunately, it is about 100 KM below the moon's surface. The Ice Driller provides access to these ice reservoirs. Some of the ice is used as water. The remaining ice is cracked into the hydrogen and oxygen which are used by other building tiles.

When activated by staffing it with 1 engineer and 2 settlers, it will produce enough ice to generate 2 ice, 4 oxygen, and 2 energy resources.

(pictures of tile)

Hydroponic Farm

Everyone needs to eat! The hydroponic farm provides food resources to the settlement.

When activated with 1 biologist, 1 oxygen, 1 nitrogen, and 1 ice resource, it can produce 5 food resources.

(pictures of tile)

Atmospheric Nitrogen (N₂) Extractor

The Titan Atmosphere contains over 90% nitrogen. Nitrogen is critical to recreating a breathable atmosphere for the living things in the settlement and as a component for building new structures.

When provided with 1 engineer, it can produce 1 nitrogen resource.

(pictures of tile)

Mining Rig

Building materials are heavy. To enable settlement expansion, the Mining Rig allows for local sourcing of building materials by quarrying and processing regolith. It's a dirty but necessary job!

When provided with 2 settlers, 1 nitrogen, and 1 fuel, the Mining Rig can produce 2 regolith resources.

(pictures of resources)

RESOURCE TOKENS

The game uses resource tokens to enable actions. Resources can be consumed, destroyed, and created throughout the game.

(picture)

SPACE MEEPLES

Settlers are portrayed by the space meeples. We randomly assigned each specialty to a color but feel free to substitute as you wish!

(picture)

CONTROL CONSOLE

The Control Console provides a place to keep track of idle and quarantined settlers and stored resources. There are also sliders to track the round number and the capacity of hexes on the supply ship.

(picture)

SUPPLY SHIP

The supply ship provides an important role in helping the settlement become self-sufficient. During the settlement's growth phase, it provided critical resources and settlers to help grow the settlement. Each round, the supply ship is loaded with resources and settlers chosen by the players. It arrives at the start of the next round (if all goes well). The cargo capacity of the supply ship can be set by the players to adjust the game difficulty.

Easy: 7 cargo hexes

Moderate: 6 cargo hexes

Hard: 5 cargo hexes

EVENT CARDS

Event cards affect the gameplay in various ways. Something it helps, sometimes not so much.

INSTRUCTIONS

SETUP

(picture of setup with numbered areas)

1. Establish the initial colony by arranging building tiles in the center of the table. The arrangement doesn't matter. We don't place any importance in how the tiles are organized since the settlement will need to exist harmoniously with the landscape at the settlement site. Leave room to the left of the settlement for expansion.
2. Place the Control Console to one side.
3. Choose a supply ship with the desired number of cargo hexes for the game. Fewer hexes makes the game harder. Place it above the settlement.
4. Create the Resource Reservoir. Place it to the right of the Control Console. Store all of the resources and space meeples not available to the settlement. You might want to have a container with compartments to keep them organized. An egg carton or ice cube tray would work great.
5. Before the first round, players perform the Placement Action to stock the Supply Ship with resources and settlers. For the initial supply ship, players must place, AT A MINIMUM, settlers, ice, oxygen, and food.

GAME PLAY

The game is played in 7 supply rounds with additional rounds while resources exist. The game continues until either the settlement becomes self-sufficient or collapses.

1. Setup the game.
2. Pick a First Player to start the game and give them the first player token.
3. Players take turns with the Place Resources and Settlers Action to populate the first supply ship.
4. Start Round 1!

ORDER OF ROUND OPERATIONS

For each round, players will perform the following actions. There may be circumstances where players are forced to skip actions. For example no resources may be available to harvest or an event card may cause a change.

1. Draw Action - draw one event card and do what it says. Skip this action in the first round.
2. Unload Action - Unload the supply ship to the Control Console.
3. Harvest Action
 - a. Harvest new resources from the output area of the activated building tiles. Place them in the appropriate area of the Control Console.
 - b. Return resource inputs to the Resource Reservoir.
 - c. Return settlers to the Community on the Control Console.
 - d. Place newly constructed building tiles into the settlement.
4. Settlement Placement Action
 - a. Starting with First Player, place resources and settlers to complete a building tile.
 - b. Continue clockwise until no more buildings can be activated or the team chooses by consensus to stop.
5. Prime Outputs Action - add output resources to all ACTIVE building tiles.
6. Supply Ship Placement Action
 - a. Continuing the turn order, players load resources into a hex on the supply ship from the Control Console. Each hex may

contain only a single resource type OR settlers. The number of resources/settlers placed is governed by the Hex Capacity on the Control Console.

7. Check to see if the settlement is self-sufficient OR has collapsed. See END OF GAME for checklists.
8. Move the Shipment Marker on the Control Console. Pass the first player token to the left.

END OF GAME (AKA HOW TO WIN OR LOSE)

HOW TO WIN (SELF-SUFFICIENCY)

Players win if they can answer Yes to all of the following questions.

1. Can the outputs of the buildings sustain the colony through a round without depleting the reserve resources on the Control Console?
2. Is there enough power from the Fusion Generators to power the building needed to generate those outputs?
3. Is there enough power to maintain at least one Robotic Building Assembler?
4. Are there a sufficient number of Habitat Modules to support the number of building tiles needed for 1, 2 and 3.

HOW NOT TO WIN (SETTLEMENT COLLAPSE)

There are three mandatory buildings. At the end of every round, the following conditions must exist.

1. At least one Habitat Module must be ACTIVE and have power from a Fusion Generator.
2. At least one Fusion Generator must be ACTIVE.
3. At least one Robotic Building Assembler must have power from a Fusion Generator. Remember that the RBA consumes 4 of the 10 power banks from the generator.

If any of these conditions are not met, the settlement immediately collapses and the game ends.

GAME PLAY EXAMPLES

TBD

FAQ

1. Treat bonuses as random events. For example, if you lose resources from a supply ship and the event card doesn't say which resources, put them in a cup and pick the number of resources you lose randomly.
2. If an event doesn't apply, it does nothing. For example, if you get bonus nitrogen from the Atmospheric Nitrogen Extractor and there isn't an active one in the settlement, there is no bonus.

CREDITS

Game Design by Jon Adair, Bill Shaw, Ashle Thompson, and Ann Adair.

This game was produced as part of the 2023 NASA Space Apps Challenge. Our thanks go out to the global organizing team, the local sponsors and organizers for the Tampa Event, Tampa Hackerspace for providing the community and resources needed to pull this all together, and to our competitors who helped us raise the bar to accomplish everything in less than 48 hours.

Creative Credits

3D Models

Mining Rig by Tezca <https://www.thingiverse.com/thing:4792433>

Random building by Noobie3Dmaker

<https://www.thingiverse.com/thing:5886121>

Most buildings from the Settlers of Mars collection by AntonKossmann

<https://www.thingiverse.com/thing:3581526>

Artwork

Logo and building imagery generated by Bing Image Creator Powered by Dall-E3

Fuel Resource image by macrovector on Freepik

Regolity Resource image by pikisuperstar on Freepik

Food Resource image by rawpixel.com on Freepik

Research Credits