

Card Game: "Stellar Genesis"

Objective: The goal of *Stellar Genesis* is to build the most successful planetary system by acquiring resources, forming planets, and competing with other players for limited materials over 10 rounds. Players gain points based on the planets/bodies they form.

Game Setup:

- **Players:** 2-5 players
- **Rounds:** 10 rounds
- **Decks:**
 1. **Resource Deck:** Contains different types of interstellar resources.
 2. **Event Deck:** Contains random events that affect planetary formation (e.g., supernova, asteroid impacts).
 3. **Planet Cards:** Planet cards represent different types of planets you can form, such as terrestrial planets, gas giants, and ice giants.
 4. **Star Cards:** At the beginning, each player picks a **Star Card** to determine the type of star at the center of their system.



Board set up shown above

- Each Player begins the game with 4 randomly selected cards

Card Types:

1. Star Cards (1 per player, pick at start)

Each player begins with one **Star Card**, which defines their starting solar system. Examples:

- **Yellow Dwarf (Sun-like Star):** Balanced system. Easy to form rocky planets, average resources.
 - Default class and the best way to learn the game
 - 4 resource cards 1 event card per turn
 - Yellow dwarfs are medium-sized stars that burn hydrogen in their cores, producing a bright, yellowish light. Our Sun is a yellow dwarf, classified as a G-type main-sequence star (G dwarf), and it has an average lifespan of around 10 billion years. These stars are stable, providing steady energy, making them ideal hosts for planets with potential for life.
- **Red Dwarf:** Stable, long-lived star, but limited in heavy elements. Planet formation is slower.
 - Safest class
 - 3 resource cards 1 event card per turn
 - Bank: can place one resource card each turn into a “bank” which protects it from event cards
 - Red dwarfs are the smallest and coolest main-sequence stars, emitting a dim red light. They are incredibly long-lived, often lasting trillions of years because they burn their hydrogen fuel slowly. These stars are common in the universe and frequently host planetary systems, though their lower energy output means that habitable zones are much closer to the star.
- **Binary Star:** Two stars orbiting a common center of mass. These systems can have unpredictable gravitational effects but offer unique opportunities.
 - Most complicated class
 - Draw 12 resource cards per turn and discard 4 to keep your stars stable
 - Draw 3 event cards
 - When forming 2 or more planets in one turn draw 2 event cards for each extra planet and play the worse of the 2 discarding the other
 - A binary star system contains two stars orbiting a common center of mass. These systems are common and can consist of stars of similar or varying sizes. Binary systems are fascinating because their gravitational interactions can influence planetary orbits, leading to complex and sometimes unstable environments for potential planets.

Note, it is extremely rare to have protoplanetary disks form around the following Star types. This is because of how these stars are formed; they're

older forms of the previously mentioned stars as they expend fuel and change into a different phase of life. However, we included them to give players a more diverse range of experiences playing this game.

- **Blue Giant:** Massive energy output, faster planet formation, but high risk of destructive events.
 - Bit more risk and reward
 - 6 resource cards 3 event cards per turn
 - Blue giants are massive, hot stars that shine with a bright blue light due to their high temperatures. They are significantly larger and more luminous than the Sun, with powerful radiation and short lifespans, typically a few million years. Because of their size and intensity, blue giants exhaust their nuclear fuel quickly and end their lives in spectacular supernova explosions.
- **Super Giant:** The biggest of the stars, this system is fast-paced and very destructive
 - High-risk, high reward
 - 8 resource cards per turn 5 event cards per turn
 - Cannot build rocky planet types
 - Supergiants are some of the largest and most luminous stars in the universe. They can be blue or red, depending on their temperature, with red supergiants being cooler but immensely large, like Betelgeuse. Their massive size and instability mean they have short lifespans and often end in supernovae, potentially forming neutron stars or black holes.
- **Neutron:** The remnant of a massive star after a supernova, Neutron Stars are incredibly dense and unpredictable, with powerful gravitational effects.
 - Trickster class
 - Start the game by drawing 6 cards
 - Take up to 2 resource cards (1 per player) from other players
 - 4 event cards per turn
 - Neutron stars are the incredibly dense remnants of massive stars that exploded in supernovae. Despite being only about 20 kilometers across, they contain more mass than our Sun, making them extremely dense. Neutron stars often emit beams of radiation, known as pulsars if they spin rapidly. They are typically found in isolation or as part of binary systems, and their extreme conditions make them unique among star types.

2. Resource Cards (drawn each round)

These are essential for forming planets. Each player draws two Resource Cards per round. Types include:

- **Gas (Hydrogen, Helium):** Needed for forming gas giants.

- Hydrogen, Helium, water vapor, Carbon Dioxide, and other gases are prevalent in the early stages of a solar system and are used to form the atmospheres of planetary bodies.
- **Ice (Water):** Needed for habitable planets and ice giants.
 - Primarily the frozen forms of the aforementioned gases: these materials are most prevalent past the frost line of the star where they'll remain solid. More distant bodies like Neptune and Uranus are primarily composed of ices. Asteroids and comets can bring these materials past the frost line into the inner solar system, allowing habitable planets to form.
- **Dust:** Miscellaneous materials useful in forming asteroids, moon systems, and rings.
 - Silicates, carbon materials, and metals, protoplanetary dust is what eventually comes together to form larger rocks, which make up much of terrestrial bodies and moons.
- **Rock (Silicates, Metals):** Needed for forming rocky planets and asteroids.
 - As dust aggregates, it becomes larger more substantial rocks. The distinction between these two resources both came from the design decision to have a wider variety of materials to pull from and from the fact that dust aggregates into larger rocks, which are more likely to accrete into and become planetesimals and thus larger planets.

3. Planet Cards

Players can “spend” resources to form different types of planets:

- **Rocky Planet (e.g., Earth, Mars):** Requires 2 Rock, 1 Gas.
- **Habitable Planet:** Requires 2 Ice, 1 Gas - added to other planet (Only 2 habitable planets per system)
- **Gas Giant (e.g., Jupiter, Saturn):** Requires 3 Gas, 1 Rock.
- **Dwarf Planet (e.g., Pluto):** Cannot be built by players
- **Asteroid Belt:** Requires 5 Dust
- **Moons:** Requires 1 Rock, 1 Dust
- **Rings:** Requires 1 Gas, 1 Ice, 1 Dust or wait 1 turn to sacrifice a moon

4. Event Cards (drawn at the start of each round)

At the start of each round, an Event Card is drawn. These introduce random events that impact all players. Examples:

- **Supernova Nearby:** All players lose one random resource.
 - **Asteroid Impact:** Choose one player to lose a planet.
 - **Comet Storm:** All players gain 1 Ice resource.
 - **Orbital Instability:** Forces players to rearrange or lose planets.
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Gameplay Flow:

1. **Star Assignment (Setup Phase):**
 - Each player picks a **Star Card**. This star type determines the player's starting conditions and resource availability.
2. **Event Phase (Start of Each Round):**
 - Each player draws event Cards from the deck based on their star. The event card can affect either just the player or all players.
3. **Draw Resources:**
 - Each player draws Resource Cards from the deck based on their star. They may trade resources with other players or “bank” unused resources for future rounds.
4. **Planetary Formation (Build Phase):**
 - Players can “spend” their resources to build planets, following the requirements on the **Planet Cards**.
 - Example: To form a **Rocky Planet**, a player must spend 2 Rock and 1 ice.
 - Formed planets are placed in front of the player in their solar system.
5. **Special Actions:**
 - **Trading:** Players can trade resources among each other to form planets faster.
6. **End:**
 - Pass turn to next player
 - Game ends after 10 rounds, winner is the one with the most points

Discarding or purchasing puts resources in the discard pile and point cards to the bottom of their respective card pile. When the resource pile runs out the current discard pile gets shuffled and put back.

After an event card is played it goes into the event discard pile which will be shuffled and put back if the events run out.

For cards that require gaining a specific resource draw till you gain the desired resource(s) and shuffle other drawn cards into the resource deck

Scoring:

At the end of 10 rounds, players count their points:

- **Rocky Planet:** 5 points
- **Gas Giant:** 7 points
- **Habitable Planet:** 10 points (requires a specific combination of ice, rock, and the right star type)
- **Dwarf Planet:** 3 points
- **Asteroid Belt:** 2 points
- **Moons:** 1 point (2 max for rocky, 10 max for gas giants)

- **Rings:** 2 points (gas giants only)
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Winning:

The player with the highest score after 10 rounds wins, having successfully formed the most robust and resource-rich planetary system.

This win condition emphasizes strategic planet-building while focusing on the stages of planetary system evolution, encouraging players to diversify their solar system and complete their "chain" before others.

Event Cards:

Event cards are drawn at the beginning of each round, impacting both the drawer and occasionally all players. Some events allow players to strategize how they spend resources, while others force them to react to disasters or cosmic phenomena. Certain **beneficial events** will let players recover resources or stabilize their system, encouraging players to take risks with faster planet formation. **Harmful events** add a risk-reward dynamic to the game, making it important to not overextend a system without stabilizing it first.

Event cards are meant to represent everything that can go wrong during planetary formation in a volatile system, from positive celestial phenomena like comet storms, accretion disk growth, and planetary migration, to system-disrupting cosmic disasters, like magnetic storms, planetary collision, and solar flares. The different types of events are denoted by the symbols on each card: the Sun, the Comet, and the Shattered Planet.



Beneficial Events: Sun

1. **Comet Storm:** Each player gains 1 Ice resource, as icy comets deliver precious ice to their developing systems.
 2. **Asteroid Mining Boom:** Players can trade 1 Dust resource to look for 1 Rock from the draw pile.
 3. **Supernova Remnant:** Players gain 1 free Gas or Rock resource from a nearby star's explosion.
 4. **Galactic Winds:** Each player may discard 1 Dust card to search for 1 ice in the draw pile.
 5. **Solar Winds Favorable:** Players with gas giants gain an additional Gas resource as solar winds boost atmospheric accumulation.
 6. **Gravitational Assist:** Negate any event that would destroy a planet.
 7. **Nebula Gas Cloud:** All players draw an extra Gas resource this round, simulating the passage through a nebula.
 8. **Accretion Disk Boost:** Players who build a planet this round get a bonus resource of any type.
 9. **Tidal Heating:** Players with moons gain 1 Rock or ice resource as gravitational forces heat up their system.
 10. **Planetary Migration:** Move one of your planets to a more stable orbit, protecting it from destructive events such as Growing Star and Gamma Ray Burst.
 11. **Strongest System:** Draw two cards per player present in the game, and choose one card to give to each other player. Keep the remaining cards.
 12. **Rogue Planet:** Gain a dwarf planet.
 13. **Super Earth:** Gain a super giant Habitable planet worth 12 points. Play this card as if it were a planet, do not reshuffle.
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Neutral Events: Comets

1. **Cosmic Dust Cloud:** Each player gains 1 Dust resource, but players must spend it immediately or lose it by the next turn.
2. **Asteroid Belt Formation:** Each player may trade 2 Dust for a Dwarf Planet or Asteroid Belt.
3. **Planetary Resonance:** Any player with two or more gas giants may swap resources with another player.
4. **Volcanic Eruption (on a Rocky Planet):** Players with rocky planets may sacrifice 1 resource to gain a permanent +1 point bonus on one planet from volcanic activity.
5. **Gas Giant Atmosphere Loss:** Players with gas giants must discard 1 Gas resource to maintain their planet's atmosphere.
6. **Planetary Fragmentation:** Players who haven't formed dwarf planets or an asteroid belt lose 1 resource of their choice.

7. **Large Impacts:** Planets are impacted if a player owns a habitable planet it returns to a rocky planet, a rocky planet of your choice gains a moon if possible.
 8. **Moon Formation:** Players who have gas giants may spend 1 Rock resource to form a moon.
 9. **Revolution:** take everyone's resources and then evenly redistribute them.
 10. **Roche Limit:** The planet with the most moons has one approach too close and is torn apart. If terrestrial, destroy the moon as material falls from orbit. If gas giant, create a new ring.
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Harmful Events: Broken Planet

1. **Supernova Shockwave:** Lose 1 random planet or 3 random resources as a nearby star goes supernova.
2. **Black Hole Encounter:** Discard a random resource as material is sucked into a black hole passing through the galaxy.
3. **Gamma Ray Burst:** All players lose the planet closest to their sun unless they can spend 2 resources to protect it.
4. **Colliding Planets:** Sacrifice one planet as it collides with another. The player must have at least two planets for this card to have any effect.
5. **Gas Cloud Collapse:** If you have any gas giants, discard 1 Gas resource or risk losing the planet.
6. **Magnetic Storm:** Lose 1 Rock resource as a magnetic storm disrupts planetary formation.
7. **Asteroid Collision:** Each player loses 1 random resource as their developing planets are hit by asteroids.
8. **Solar Flare:** Discard 1 Gas or Rock, representing material blown away by a solar flare.
9. **Feeding Zone:** Resources were drawn into your star: draw no resource cards next turn.
10. **Meteor Showers:** Discard one resource per planet.
11. **Growing Star:** Discard all resources in your hand or lose all planets (card does not affect dwarf/neutron star types) (must discard at least 4 cards).
12. **Gravitational Disruption:** Lose one resource per planet.
13. **Failed Accretion:** If a planet was made last turn, turn it into a dwarf planet.
14. **That ship from Cosmos:** Neil Degrasse Tyson rewinds time to turn all planets into dwarf planets.
15. **Miss Frizz and the gang:** Arnold takes his helmet off, spend an ice or 2 other resources to save him.
16. **Collision Event:** A habitable planet becomes a dwarf planet.
17. **Ellipsoid Cloud:** Having an unformed disk leads to resource loss discard 3 resources.
18. **Fuel Burn:** Discard 1 resource per event card drawn this turn to feed your star.
19. **Spin up:** A planet gains too much speed and leaves your solar system. Discard a planet.