

We are all stars

Educational game



MARMAJ

We are all stars

Introduction

In the near future, every four Earth years, a breathtaking competition takes place. Four brave teams head off from planet Earth on a journey to travel all around the Galaxy with a quest to find valuable elements, required to form new stars. Elements are gathered in enormous amounts (10^{29} kgs). The stars produce life-giving energy and come in all shapes and forms. Size matters - the biggest stars are the most wanted ones, however even smaller stars will provide honour and glory. The most successful competitor will earn the right to brag for the entire season. Who will become the winner this time?

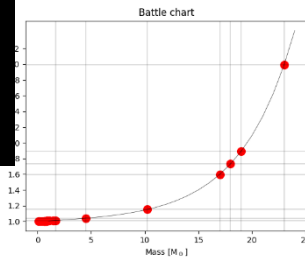
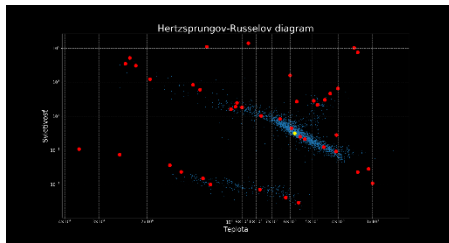


Goal of the Game

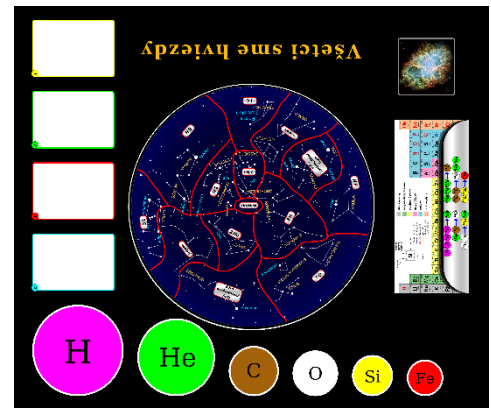
Each player will take on the role of an interstellar hunter, roaming through space in a masterfully crafted vessel. During the game players will be acquiring elements necessary to create stars, which in turn will grant them victory points. However, creating a star is not enough, it also has to be placed in the correct spot on Hertzsprung-Russell diagram. The hero who claims the most victory points - wins.

Game Elements

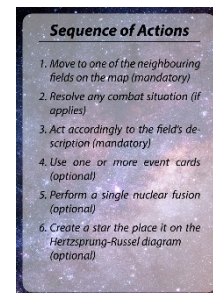
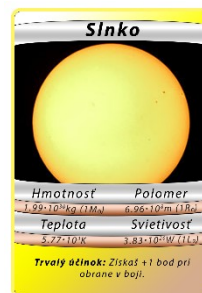
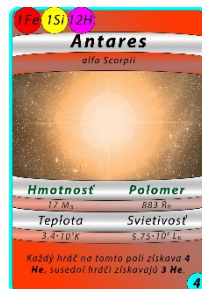
- a board representing the Northern Hemisphere of our sky and the Table of Elements with possible nuclear fusion and fission reactions
- the Hertzsprung-Russel diagram



- 2 battle charts
- two standard dice (D6)
- 4 rocket tokens (1 for each player)
- 40 tokens representing stars (10 for each player)
- starting player marker: a Helix Nebula picture



- elements: 100x hydrogen (purple), 60x helium (green), 40x coal (brown), 30x oxygen (white), 10x silicon (yellow), 5x iron (red)
- 4 Sun cards with the games rules summary
- 42 stars cards
- 36 events cards



Preparation

Put the board on a table in front of you. Shuffle event cards and put them face-down on the designated spot on the board. Star cards should be divided into 4 separate groups, based on their point value (bottom-right corner): 4 points - super-giants, 3 points - giants, 2 points - main-sequence stars, 1 point - white dwarfs. Star cards should be placed face-up on the proper spots. Place the rocket tokens on the central field FISSION and put all elements on the appropriate spots.

Each player begins the game with 5 hydrogen (H) crystals, 1 event card and 1 randomly selected Sun card. Event cards are secret, while all the other cards and resources should be visible to other players. Players can check the state of other players' resources and stars.

Sequence of Actions

Game starts with a player whose zodiac is closest to the current upper-culmination of the Sun (meaning - whoever had their birthday last). This player gets the starting player marker. After that players will take turns clockwise. At the beginning all the players gather elements from the stars they own starting with the first player. During their turn players can:

- move to one of neighbouring fields on the map (mandatory)
- resolve any combat situation (if applies)
- act accordingly to the field's description (gather resources, draw an event card, perform a nuclear fission)
- use one (or multiple) of their event cards (optional) - event cards can also be played in a different phase, if text on the card itself specifies so
- perform a single nuclear fusion (optional)
- create a star (optional) then place it on the Hertzsprung-Russel diagram

Gather elements from the stars

Each star card (except for super-giants) contains information about the amount of resources it's capable of producing every turn. At the start of the starting player turn, before moving or taking any other action, all stars will produce elements, which can be later used to create new stars, perform fusion into heavier elements or fission into lighter elements.

Move to one of neighbouring fields on the map

This action is mandatory. You always have to move your rocket marker to a neighbouring field on the map. If such field is occupied by another player(s), movement will result in a combat. Rules of engagement are described in details later on. A player cannot remain stationary on a field where his previous turn was finished (unless specified by an event card).

Resolve any combat situation

Combat takes place if one player willingly moves to another player's location. This means combat will not happen if movement was caused by an event card or other circumstances. The spoils of battle are obviously the resources. Although this might seem like unfair play, the interstellar judges are willing to overlook this in the heat of competition. The player that moves acts as the attacker, while the player previously occupying the field acts as the defender. The combat is won by the player who accumulates more battle points. Battle points are the sum of a dice roll and any bonuses the player might get from events and owned stars. Each stars specifies which of its parameter(s) can be used to aid you in combat. **Radius** increases your *attack* bonus, while **mass** increases your *defensive* capabilities.

Bonus points should be calculated from the appropriate chart. Numbers on charts should be read with 1 digit precision and rounded up (e.g. 1.35 becomes 1.4). Bonuses from different stars and other sources (events, Sun bonuses) are cumulative. You cannot 'borrow' stars from other player. As a result of winning the attacker can grab

one random element from the defending player and continue with other phases of the turn. The defender is forced to move to a neighboring field, not benefiting from its description. In case of the defender's victory, the attacker is forced to retreat back to the original location and is not allowed to use its description. The defender gains 2 H from the resource bank and the attacker can now perform any remaining actions. If a combat results in a draw, it is treated as if the defender has won.

Example 1:

Ania is attacking Michał on a field with 8 hydrogen. She owns 'Procyon b', 'Bellatrix' and 'Capella a'. These stars' highlighted parameters are Mass, Radius and both of them respectively. Only the latter provides benefits to attacking. Ania checks the battle charts and compares 'Capella a' radius of 11.87 Solar radius to appropriate marker on the axis. She concludes that 'Capella a' adds 1.5 points to her score. For 'Bellatrix' cards she gets the same amount of attack points (5.75 Solar radius). She then rolls the dice and gets 4, so her total score equals 7 points.

Michał, on the other hand, owns 'Capella b' (radius), 'Mirzam' (radius) and 'Rigel' (mass and radius). He consults the charts and adds 3 bonus defence point from 'Rigel' (23 Solar mass). He then rolls 3, and with a total score of 6 points he unfortunately loses this combat.

Example 2:

Aga is attacking Monika on a field with event card, with 'Arcturus' (mass) and 'Deneb' (mass and radius) at her disposal. 'Deneb's radius (203 Solar radius) provides her with 1 bonus points to attack. She rolls 5, for a total of 6 points. Monika owns 'Altair' (radius) and 'Aldebaran' (mass). 'Altair' does not help her with defence but 'Aldebaran' with 1.7 Solar mass gives her 1 point to defence.

Monika rolls 4 which seemingly is not enough. She does however get one additional point from her Sun card. The score is now tied and Monika, as the defender, is declared the combat winner.



Act accordingly to the field's description

Most of the fields on the map allow players to gather a specified amount of resources from the pool. There are two fields that allow the player to draw the top card from the Event deck. The field designated 'fission' allows players to perform up to two nuclear fissions this turn. A fission is a process opposite to fusion (explained below) and can only be performed according to allowed chemical reactions, explained on the Periodic Table of Elements. Another 'special' fields are designated '6 H and unlimited fusion'. It means that the player gathers 6 hydrogens and can perform as many fusions as he/she needs. A player that finds themselves on a new field without actively moving there on their turn (e.g. after losing combat, or due to an event) does not gain any benefit from that field.

Use one of the event cards

Event cards can be acquired from appropriate fields on the map. They vary in effects, cost and activation time. Some cards might require you to use some of your elements before activation. In the upper-right corner you can see the information regarding circumstances under which that certain card can be played. If the 'Activation' box says 'immediately', you have to reveal the card immediately upon drawing it. Used event cards should be placed on the bottom of the stack.

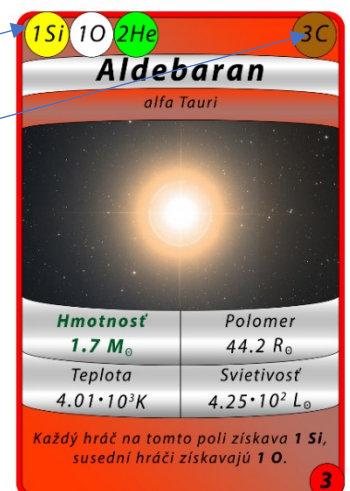


Perform a nuclear fusion

Heavy elements are a result of thermonuclear reactions inside stars. An iron nucleon has the highest binding energy and at the same time it's the heaviest element that can be created by fusion without spending excessive energy. Thermonuclear reactions differ based on type and mass of a star. In our game we assumed one of the actual scenarios, which is displayed on the Periodic Table of Elements. The possible reactions are tabled in two columns. Circles shows elements taking part in the reaction with their atomic masses (upper-left spot on the circles).

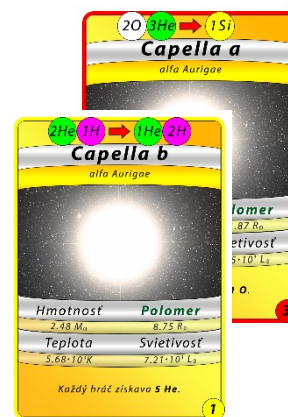
Create a star

You can only create one star per turn. To create a star, you must gather and then spend (remove) all elements specified in the upper-left corner on that star's card. Stars created by players become their own and will from now on grant additional resources every turn (upper-right corner) and provide players with combat bonuses. A vital requirement before claiming the star (with all benefits it grants) is to correctly place a token representing that star on the Hertzsprung-Russel diagram. Based on the parameters printed on the star card player has to match the star with a corresponding red dot on the diagram. The position of the Sun is marked with a yellow dot for reference. Incorrect placement of the token results in the loss of both the star and all resources spent on its creation. Creating a star effectively finishes player's turn, no event cards can be played anymore this turn.



Multiple Star Systems

Some stars appear in so called multiple systems. Those stars share the same name, but are designated with different letters of the Latin alphabet. In some cases, they are in a different stage of evolution, e.g. white dwarf in a binary system with a main-sequence star. For successful completion of a whole system player will get additional victory points: 1 point for binary system, 2 points for multiple (triple) system. There is only one triple system in the stars deck: Keid.



End of the Game

When one of the players collects 10 victory points, he/she finishes a turn, then all the remaining players have their last turns, up until the player who started the game first (who does not have an additional turn). It is possible, that other players will also collect 10 victory points in that time. To find the winner first compare victory points. If highest scores are tied, compare the sum of atomic masses of all owned elements. If the result is still tied, add up and compare masses of all owned stars.

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