# What is PhyloGenome?

PhyloGenome explores the fascinating world of genome sequencing, allowing you to decide how the history of the sequencing era will unfold. This game combines scientific concepts with strategic gameplay, where you will take turns playing sequencing projects from a vast array of potential species. The goal is to accumulate the most points by the end of the game.

Species cards

Generation progress cards

Discard pile

Hand

Deck
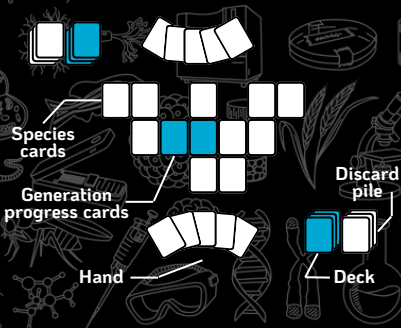
Types of cards

In PhyloGenome there are 3 types of cards:

1. Species cards are the constructing blocks of the game and the source of the points. These cards provide information about the species and its first genome sequencing project. They also provide details regarding how they are played. Discarded *species cards* go to the discard pile of the player the card was facing.

Genome scale

Sequencing generation

Species

Card points

Genomic interest

Sequencing information

Movement

Taxonomy

Green sea turtle
Chelonia mydas

7 ③

5 POINTS

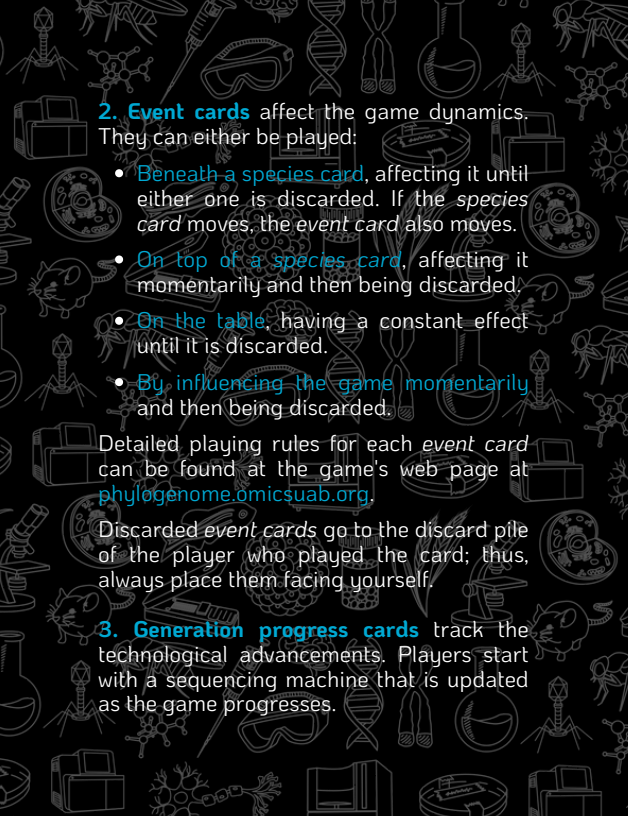The green sea turtle has a move of 2.
First publication date: Jul 15, 2021
Genome size: 2,100 Mb
Coding genes: 19,752
Unique chromosomes: 28

Metazoa, Chordata, Testudines

2. Event cards affect the game dynamics. They can either be played:

- Beneath a species card, affecting it until either one is discarded. If the *species card* moves, the *event card* also moves.

- On top of a *species card*, affecting it momentarily and then being discarded.

- On the table, having a constant effect until it is discarded.

- By influencing the game momentarily and then being discarded.

Detailed playing rules for each *event card* can be found at the game's web page at phylogenome.omicsuab.org.

Discarded *event cards* go to the discard pile of the player who played the card; thus, always place them facing yourself.

3. Generation progress cards track the technological advancements. Players start with a sequencing machine that is updated as the game progresses.

Sequencing generations

Players start the game equipped with a **first-generation sequencing** machine and progress by adding, on top of it, cards from subsequent sequencing generations (*i.e.*, **second and third**).

The required sequencing generation for playing a *species card* is indicated in the top right circle of the card. To progress to the next sequencing generation, you need at least 4 *species cards* in game facing you from the previous generation. If you end up with 3 or fewer cards facing you of a certain generation due to discards, that sequencing generation's advancement is lost and you can only play cards from the previous generations until you meet the 4 cards requirement. However, any *species cards* already played stay in-game. You can also jump from third to first sequencing generation in this way.

Compatibility

In-game cards in PhyloGenome must be compatible with the cards adjacent to them. When playing a species card, adhere to the following requirements:

- **Genome scale compatibility**: the genome scale of the played card and all adjacent cards must share the same number or have a difference of one.

- **Sequencing generation limit**: you may only play cards up to your current sequencing generation technology.

Actions may lead to incompatible connections or empty spaces, resulting in a section of the cards becoming disconnected from the *generation progress cards*. In such cases, each player has until the end of their next turn to fix it. If they don't, all disconnected or incompatible cards are discarded.

Preparation

Pick a random card. The player whose birthday is closest to its publication date, starts. Then, prepare the game:

1. Each player sits facing each other with their deck of cards facing down next to them. The recommended composition is 25 species cards and 10 event cards of your choice for each player.

2. Each player places a *generation progress card* of the first generation on the table facing them side by side.

3. Each player draws 5 cards from their respective deck.

Player turn

Each turn is divided into 4 steps:

1. Activate your start-of-turn actions: trigger any action specified to activate "at the start of your turn".

2. Draw a card: draw a card from your deck and put it into your hand.

3. Actions: perform up to 3 of the following actions (you may repeat any except for playing an *event card*):

- Discard 1 card, draw 3 cards
- Play a *species card* facing you
- Move up to 2 *species cards*
- Play an *event card*

4. End of turn: the turn ends and cards in incompatible spots or disconnected from the *generation progress cards* are discarded.

Counting points

The game ends when both players have played all their *species cards*. To finish, count the points as follows:

1. Species card points: sum the points of every *species card* facing you. Apply the effects of any *event card* beneath them.

2. Sequencing generation points: count the number of *species cards* using each sequencing generation; then multiply each total by 1, 2 and 3, respectively.

3. Special points: for the player with:

- The longest chain of *species cards* with ordered publication dates (chain must be longer than 5): **15 points**
- The most variety of genomic interest areas among *species cards*: **8 points**
- The oldest publication date; the largest genome size; the highest number of protein-coding genes; the highest number of unique chromosomes: **2 points each**

Detailed game rules and alternative game dynamics are available at the game's web page at phylogenome.omicsuab.org

*Credits: Phylogame.org, Honorah O'Neill.
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