

# THE FUTURE HISTORY OF COAL MINES – THE GAME

Cross-Disciplinary Capabilities

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## **The Terraforming Announcement\***

*Since the abolition of coal mining in 2030, society has been striving for a sustainable restructuring of the mines. The mission here is to provide a platform that will allow for various imaginative ideas to be put into shape.*

*Earth is overpopulated, resources are dwindling, and the adverse effects of climate change are thriving more than ever. The world now faces the challenge to make use of 2.500 km<sup>2</sup> of exploited, devastated and seemingly dead space for humanity's as well as the earth's benefit.*

*The terraforming of the coal mines is an endeavor so great that it will take the united effort of humankind to not repeat old mistakes but rather give this area a new, meaningful lasting purpose. Therefore, the newly formed Terraforming Committee is calling on any corporation or enterprise, be it large or small, government or non-governmental entities and civil society actors to collaborate and contribute in the terraforming process. These measures will, eventually, result in a habitat that provides in a sustainable fashion for people's economic, social and cultural needs.*

\* This game is inspired by and adapted from "Terraforming Mars" by Jacob Fryxelius.

## GAME OVERVIEW

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In “The Future History of Coal Mines”, the players represent a corporation or other entity, and buy and play cards depending on their resources, which describe different projects. These projects directly or indirectly contribute to the restructuring of a former coal mine. During the game players increase their so-called terraform rating (TR) and collect points. The player with the highest score (TR + points), wins the game. You increase your TR by increasing the terranean parameters (water, soil quality and renewable energy). As the terraforming process continues, more projects become feasible, creating the future space of the coal mine. Additional points are awarded for contributing to a sustainable terraforming process. This can be anything from building viable infrastructure to protecting and supporting the environment.

Each round in this game has 4 phases starting with an **Orientation phase**, followed by an **Innovation phase**. Here players access new cards. Next comes the **Implementation phase** in which players complete a maximum of two actions, in player order until everyone has finished. Lastly comes the **Aggregation phase**. Here all players aggregate resources depending on their production rates on their score cards, and gain income from their terraform rating.

On the game board you can see scales monitoring soil quality, percentage of renewable energy and the terraform rating. Most importantly you can see a map of the deserted coal mine territory where you add water tiles, greenery tiles and viable infrastructure tiles during the game. Furthermore, there is a list of standard projects, which all players can use, as well as milestones that players can compete for.

The game ends when all terranean parameters have been reached, meaning soil quality has reached level 10 of fertility, energy is 100% renewable, and there is enough water for the territory of the former mine to have reached a condition in which it can flourish (9 tiles).

The winner of the game is the player with the highest score. Your score is a combination of your TR, points from cards played, your tiles on the game board, milestones reached and awards.

## TERRANEAN PARAMETERS

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Soil quality, renewable energy and water are the so-called Terranean Parameters. The whole game evolves around reaching these parameters. When you raise the level within a parameter, your terraform rating increases by the same amount.

A Terranean Parameter cannot be raised any further than its indicated maximum. Once the maximum is reached, it can no longer increase your TR.

The game ends when all three parameters have been reached.

## GAME BOARD



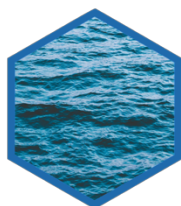
1. **Terraform Rating (TR) scale:** Every player starts at 20. Place one player marker for each player on this spot. Every round you automatically increase by 1 step.
2. **Renewable Energy scale:** This terranean parameter starts at 5%. Place a white marker at the beginning of this scale.
3. **Water tiles:** This terranean parameter starts off with 9 tiles, which are placed on the game board.
4. **Soil Quality scale:** This terranean parameter starts at 1. Place a white marker on the beginning of the scale.
5. **Bonus steps:** When you raise the parameter to this point you also receive the depicted bonus (raise energy production, place 1 water tile, increase renewable energy percentage).
6. **Standard Projects:** These can be used by all players subject to their liquidity.
7. **Milestones:** Can be claimed throughout the game and provide extra points in the final score.
8. **Placement bonuses:** When you place a tile on a spot with a placement bonus you receive the depicted resource or card.
9. **Reserved areas for water tiles:** The blue areas are reserved for water tiles. Water tiles can only be placed on these spots and no other tiles may be placed here.

## TILES

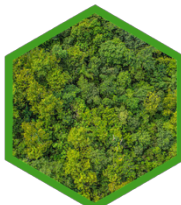
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Tiles are placed on the map of the game board throughout the game. When you place a tile, you have to keep placement restrictions in mind, which are either described on the card used to place the tile or seen on the map (such as reserved spaces for water tiles).

On some spaces on the map there are little icons, which are placement bonuses you can receive when you place a tile on this space. You also receive a bonus for placing a tile next to a water tile (not another water tile).



**Water Tile: On the map there are spaces reserved for water tiles, indicated by a blue frame. Water tiles may only be placed on these reserved areas.** Placing a water tile increases your terraform rating by 1 step. When you place a different tile, other than a water tile, next to a water tile you receive a 2€ bonus.



**Greenery Tile: Placing a greenery tile increases the soil quality and also increases your TR.** If soil quality has already reached its desired level, you can still continue placing greenery tiles, and thereby increase your TR.



**Infrastructure Tile: You may not place this tile next to another infrastructure tile.** Add a player marker onto this tile, to indicate that you have placed this tile. At the end of the game each infrastructure tile is worth 1 point for each greenery tile adjacent to it.

## MARKERS

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### Money/Resource Cubes:

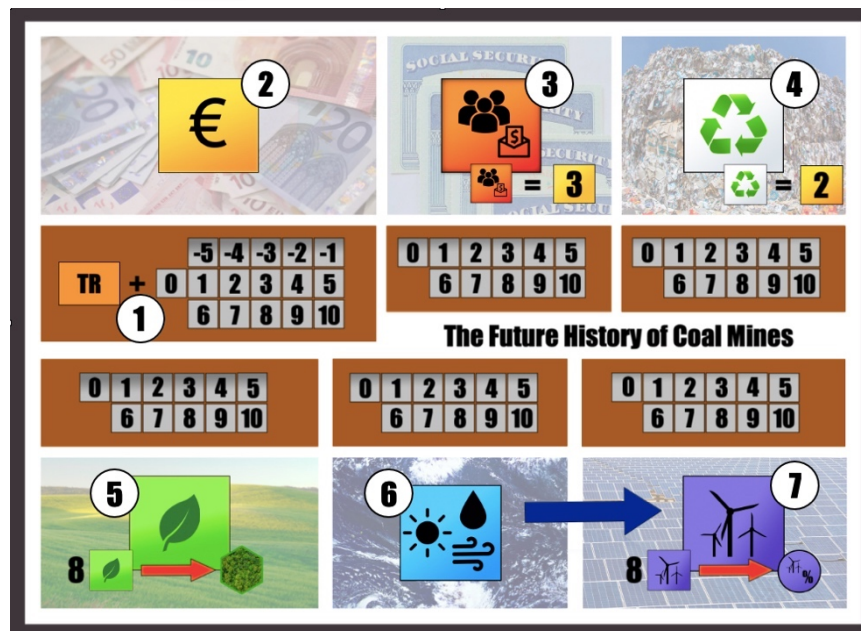
Bronze = 1      Silver = 5      Gold = 10

**Player Markers:** At the beginning of the game each player chooses a color as player marker, which they will use throughout the game to mark their TR, placement of tiles and production on the score card.

**Soil quality, renewable energy markers:** The white cubes, which start at the beginning of the respective scales.

## SCORE CARDS

On the score card you can keep track of your resources and your production. Resource cubes are placed in the respective boxes to indicate the amount of resources depending on production levels. Player markers are used to keep track of the production rates. On playing cards, resource icons indicate corresponding resource cubes. A resource icon inside a brown box, however, refers to the production of that resource. For example:



**1. Production Tracks:** You mark the level of production with your player markers. If your production is increased, move your player markers on the production tracks. The production is not limited to 10. When it rises above 10 use two player markers to continue counting.

**2. Income:** Is used to pay for cards and other things such as standard projects, milestones, etc. Your income is a combination of your production and your TR.

**3. Labour:** Is used to pay for cards with a labour tag and is worth 3€/cube.

**4. Recycle:** Is used to pay for cards with a recycling tag and is worth 2€/cube, similar to labour.

**5. Plants:** You can convert plant resources into greenery tiles. As indicated on the score card 8 plant resources are worth one greenery tile.

**6. Sun, Wind, Water:** can be used for some cards and is converted into renewable energy during the production phase.

**7. Energy:** similar to the plant resource, you can spend 8 energy resources to increase the percentage of renewable energy 1 step, thereby also increasing your TR 1 step.

## CARDS

Throughout the game players can buy and play cards, which have different effects on the game. There are two different kinds of cards: automated cards and active cards. Automated cards are green (first card below) and are one-time events. They are placed face up in a stack in front of the player with the top row visible, as the tags are important for the individual players. Active cards (second card below) are blue and have ongoing effects that can occur anytime in the game. They can also generate actions which can be used at any time by the player who played the card. These cards are also placed face up on a separate stack with the top panel visible so you can keep track of the cards.



**1. Cost:** This is the amount of money you have to pay in order to activate the card.

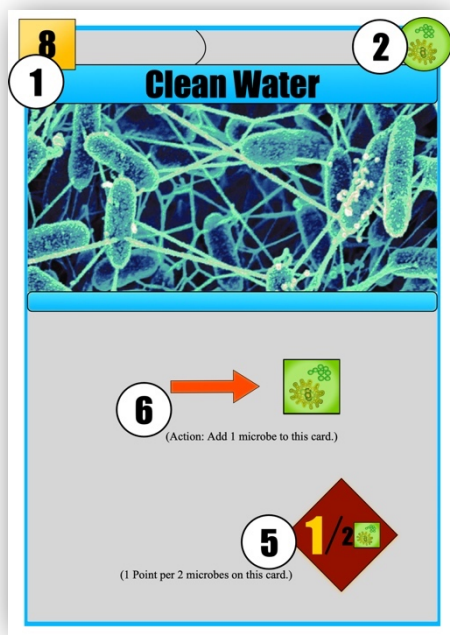
**2. Tag:** Puts the cards into certain categories and are needed for certain cards and the player board (you can pay a card with a recycling tag with recycling resources from the player board).

**3. Requirements:** Some cards have specific requirements, which have to be fulfilled in order to play the card. Like in this example soil quality has to be at 8 for the card to be played. The requirement has to be fulfilled when playing the card, not when using it later.

**4. Immediate effects:** Most cards have an effect on your resources. Sometimes you can also place a tile or create other effects.

**5. Extra Points:** Some cards give you extra points at the end of the game, which are indicated through this diamond shape.

**6. Effect/Action:** Blue cards can have ongoing effects or actions that can be used throughout the game. Actions, which are indicated by a red arrow, may be used once each round. Effects are always active.



## SETUP

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The game should be placed centrally on the table for all players to easily reach the board. Place the 9 water tiles, stacked, onto the reserved area. Lastly, place the soil quality and renewable energy markers on the starting positions of their scales.

The resource cubes and remaining tiles (greenery and infrastructure tiles) should also be reachable to all players.

Then shuffle the cards and place them next to the board leaving some space for a discard pile beside it.

Each player has to choose a colour and take the corresponding player markers. Everyone also receives a score card. On the score card, place a player marker on the number one of each production track. Also place a player marker on the starting position of the TR track (20).

Each player is dealt 10 cards at the beginning of the game. From these cards, players can choose which ones they wish to buy for their starting hand. Each card costs 3€. The cards which are not kept are put face down onto the discard pile. Each player receives their starting resources minus the cost for each card they keep.

Now the game can start. In the very first round the Orientation phase and Research phase is skipped. So, the first player immediately starts with the Action phase.

## ROUNDS AND PHASES

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Each round of the game consists of 4 phases.

### 1. Orientation Phase

All that happens here, is that the first player marker moves one step clockwise. As mentioned before this phase is skipped in the first round.

### 2. Innovation Phase

Every player is dealt 4 cards from which they can again choose which ones they would like to buy to keep. Each card you want to keep costs 3€. The cards you do not keep are put face down onto the discard pile. There is no limit of cards you can have in your hand. This phase is also skipped in the first round.

### 3. Implementation Phase

Each turn a player can take 1 or 2 actions, or pass. This phase continues until all players have passed. There are several different actions you can take during your turn, which you can combine as you wish:

- A. Play a card from your hand
- B. Implement a standard project
- C. Claim a milestone
- D. Use the action on a blue card
- E. Convert 8 plant resources into a greenery tile
- F. Convert 8 energy resources to increase renewable energy

If you do no action at all and pass, you are out of turn for this round. You therefore cannot take any more actions until this round is over. When every player has passed, the Implementation phase ends, and the Aggregation phase starts.

#### 4. Aggregation Phase

In this phase you stock up all your resources on the score card. First, all Sun, Wind and Water resources are converted into energy, meaning you move all the resource cubes you have in the Sun, Wind and Water box into the Energy box. Afterwards you receive new resources:

You receive resources according to your Income production and your terraform rating (income + TR). For all the other categories you receive the amount of resources according to the production marked on your score card. The resources you receive, are placed in the corresponding boxes.

When all of this is done the next round can start (starting with the Orientation phase again).

## ACTIONS

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Every turn you can take 1 or 2 actions. You can choose from 6 different actions every time. You can combine these actions as you wish.

#### A. Play a card from your hand

When you play a card, you have to be aware of any restrictions. Some cards have specific requirements as to when you can play them, and you must be able to perform the effects stated on the card. In order to play a card, you have to pay for it (price is top left). Once you paid for it you generate the effects immediately.

#### B. Use a Standard Project

There are 6 standard projects you can choose from, which are listed on the game board. You can take these actions as often as you wish in the same round depending on your resources.

1. **Sell cards:** you can discard as many cards from your hand as you wish and obtain 1€ per card.
2. **Buy Sun, Wind, Water production:** for 11€ you can increase your Sun, Wind, Water production by 1 step.

3. **Increase Renewable Energy:** for 14€ you can increase the percentage of renewable energy by 1 step and therefore also increase your TR 1 step.
4. **Buy a Water tile:** you can buy and place a water tile for 18€ and also increase you TR 1 step.
5. **Buy a Greenery tile:** for 23€ you can buy and place a greenery tile. This also increases the soil quality as well as your TR by 1 step.
6. **Buy Infrastructure:** for 25€ you can buy and place an infrastructure tile, as well as increase your income production 1 step.

#### C. Claim a milestone

You can claim a milestone once you have met its criteria. You have to pay 8€ and place your player marker on it. Only one player can claim each milestone. At the end of the game a milestone is worth 5 points. You can claim the following milestones:

1. Gardening: Having placed 3 greenery tiles.
2. Employing: Having reached 3 in labour production.
3. Terraforming: Having a terraform rating of at least 35.
4. Recycling: Recycle production of 5.
5. Transforming: Having completed 8 projects (played 8 cards).
6. Channeling: Sun, Wind, Water production 5.
7. Building: Having placed 3 infrastructure tiles.

#### D. Use the action on a blue card

Many blue cards have actions described on them. These are indicated by a red arrow. You can use these actions once every round. Once you have used the action in a round, place a player marker on this card to indicate that you already used the action this round. You can remove this marker in the production phase.

Some blue cards also have effects that are described on them. These effects are constantly active, meaning you can use them more than once in a round.

#### E. Convert plants into greenery tile

You can convert 8 plant resources into a greenery tile. This increases the soil quality 1 step and therefore also your TR.

#### F. Convert 8 energy resources to increase renewable energy

8 energy resources may be spent to increase the percentage of renewable energy by 1 step and therefore also increases your TR 1 step.

## **GAME END**

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The game ends when all three terranean parameters have been reached. If this is accomplished in the middle of a round the round may be finished until every player passes. The production phase is completed one last time and players have a last chance to convert plant resources into greenery tiles, still following the player order as placement bonuses may still be won. Thereafter the final scores will be calculated.

### **Final Scoring**

Your final score is a combination of 4 components:

1. **Your TR**
2. **Milestones** you have claimed, which are each worth 5 points
3. **Tiles you have placed** on the game board. Each infrastructure tile is worth 1 point for each greenery tile adjacent to it, regardless of who placed the greenery tile.
4. **Cards you have played.** On some cards you receive points for collecting resources, on other cards extra points are mentioned on the card.
5. **Awards** can be won at the end of the game for the player who has the most plant tags among their played cards, as well as the player who has reached the highest energy production on their score board.