



BIOECONOMY GAME

Rules

This game has been developed by Focus Games with the THYME project, a unique collaboration between the Universities of York, Hull and Teeside which aims to boost the economy across Yorkshire, the Humber region and the Tees Valley.

The Bioeconomy Game is designed to support education and can be used by schools, higher education institutes and any other organisations with an interest in improving their knowledge of the bioeconomy.

Introduction

The Bioeconomy Game should be played by 3-4 individuals or teams. Each team represents a community within a city.

The aim of the game is to minimise the amount of waste going to landfill and become an innovative community by reusing and recycling waste. At the end of the game, the city will be given a Gold, Silver or Bronze Award, based on how much waste is left in landfill, storage, or has been recycled/repurposed.

Game Components

Card Packs



Infrastructure Cards: teams can invest in infrastructure during the game. It will help their communities to create value from waste.



Opportunity Cards: present opportunities which will benefit the community.



Challenge Cards: present a scenario for the community to deal with.

Tiles



Community Tile: a community in the city



Landfill Tile: waste that has been sent to landfill



Storage Tile: waste that has been stored in a storage facility



Infrastructure Tile: recycling facility for biological waste



Innovative Products Tile: an industry that uses recycled waste to develop new products



Disaster Tile: represents a problem that the city could not deal with

Points tokens



Environmental Points: gained or lost when a decision you make impacts the environment. You gain points by using your infrastructure to deal with waste and spend them when landfilling waste and investing in infrastructure.



Economic Points: used to purchase infrastructure or store waste. You can gain them by using your infrastructure to create value from waste.

Board



Open space: Infrastructure, Landfill or Storage tiles can be placed here



Lakes: you cannot build on these, so no tiles can be placed here



Forests: you cannot build on these, so no tiles can be placed here



Community boundaries: you may not place tiles outside your own community boundary



River: runs through the city

Set up

1. Give each team a  Community Tile to place on one of the pink squares on the board, representing the location of their community in the city.
2. Give each team 5  environmental and 5  economic points to begin the game with. Place the remaining tokens where everyone can reach them – these will act as the “bank”.
3. Shuffle the Opportunity and Challenge Cards separately and place them face down in two piles beside the board.
4. Place the Infrastructure cards face up beside the board.
5. Decide who will take the first turn.

Playing the game

Read the following aloud to the group.

“Each team represents a community in the city. As a city, you are aiming to minimise waste going to landfill, and to create value for your communities. While playing the game, remember that communities can work together to support each other, and manage challenges presented by the game. At the end of the game, a score will be calculated based on how effectively you have performed as a bioeconomy and the city will be awarded a Gold, Silver or Bronze award.”

Each community’s turn in the game has 4 stages:

1. Interact with your community
2. Take an Opportunity Card
3. Invest in infrastructure
4. Take a Challenge Card

The stages are printed on the board to remind you. 1 round consists of every community taking a turn. You should play 8 rounds of turns in total.

While you play, a few things to remember are:

- All tiles placed on the board must be adjacent to a tile belonging to your community
- At the end of the game, a score will be calculated
 -  Landfilled and  stored waste will have a negative impact
 -  Infrastructure and  Innovative Products will have a positive impact
-  Landfilled waste can be removed later in the game, but is expensive to do so
-  Stored waste can be dealt with later in the game if you invest in the right  infrastructure

Stage 1: Interact with your community

NOTE: On your first turn begin with Phase 2. If you have no tiles on the board skip to Phase 2. If you have tiles on the board continue with Phase 1.

Consider the infrastructure, landfilled waste and stored waste tiles adjacent to your community. You can now collect rewards for the infrastructure you've invested in and try to deal with any waste you have previously stored.

Collect Rewards:

For each  **Infrastructure** tile in your community, collect +1  economic point.

For each  **Innovative Products** tile, collect +2  environmental and +2  economic points.

Deal with waste:

To remove a  Landfill Tile, spend 5  economic points.

If you have  stored waste tiles, you may now be able to create value:

1. Look at the Infrastructure required to deal with waste on any Challenge Cards you've kept aside after storing waste.
2. If you or another community now has one of the Infrastructure Cards listed, use the infrastructure to deal with the waste.
3. Collect the return detailed on the Infrastructure Card and remove a stored waste tile from the board.

Talk to your neighbouring communities and negotiate to use their Infrastructure if you want to - think about sharing rewards to use each other's facilities.

Stage 2: Take an Opportunity Card

- Select a card from the pack. Read the scenario aloud.
- Choose between options 1 and 2 and collect the appropriate number of economic/environmental points stated on the card.
- Put the card at the bottom of the pack/discard it.

Stage 3: Invest in Infrastructure

NOTE: On each community's first turn (and potentially some later turns), this stage will not be relevant as you will not yet have enough points to purchase any infrastructure. If so, skip to Stage 4.

Choose whether to spend some ● economic or ● environmental point on purchasing Infrastructure. This will help you to manage waste and generate more economic and environmental points during the game.

How to purchase infrastructure:

- Look at the Infrastructure cards and decide which (if any) you'd like to purchase.
- Give the required number of tokens back to the bank.
- Take your chosen Infrastructure Card and place it in front of you.
- Place an  Infrastructure tile adjacent to your community - this represents a facility in the community being used for that purpose.

All infrastructure should be built on open space, adjacent to your existing community.

If you do not want to, or cannot purchase infrastructure, move to stage 4.

Stage 4: Take a Challenge Card

Pick up a Challenge Card. There are 2 types of challenge:

- City Challenge: blue border
- Waste Challenge: green border

Remember that communities may be able to help each other deal with challenges – think about sharing rewards by working together as a whole city.

City Challenge

- Read the scenario aloud.
- Decide whether to deal with it using Option 1 or Option 2.
- Lose points, cards or other items by following the instruction on the card

If you are instructed to lose points and do not have enough to cover the whole amount you must return all of your points..

Waste Challenge

Read the scenario aloud and choose one of the three options.

Landfill

- Pay the required number of ● environmental points.
- Place a  Landfill Tile on open space adjacent to your community.
- Landfilled waste is bad for the environment and expensive to remove later. It will reduce your score at the end of the game.

Store

- Pay the required number of ● economic points.
- Place a  Storage Tile on open space adjacent to your community.
- Keep the Challenge Card in front of you to remind you what kind of waste you have stored.
- Stored waste can be handled later if you invest in the relevant infrastructure. Stored waste will reduce your final score, but not as much as landfill.

Add value (use Infrastructure to generate value from waste products)

- Check if you have any of the Infrastructure cards listed.
- Collect the reward stated on the corresponding card from dealing with waste using this facility.
- If your return includes an  Innovative Products tile, place this adjacent to your community. This represents your use of innovative technologies and will improve your final score.

Note: During the first few turns, adding value will be difficult as you have not yet invested in much infrastructure.

Can't deal with a Challenge Card?

All Challenge Cards must be dealt with before moving on.

If a community is unable to deal with a situation, other communities may have to step in.

If the city as a whole is unable to deal with the challenge, a  Disaster Tile should be placed adjacent to the relevant community. This represents a problem that the city could not handle and will result in a lower score at the end of the game

END OF TURN

Play continues with each community taking their turn to complete the 4 stages. You should play 8 rounds in total.

Ending the game - The Bio City Awards

After 8 rounds, it's time to see how well your communities have performed. Calculate your score **as a whole city** by adding together the corresponding points for all of the tiles on the board:

- For every  Landfill Tile: -3
- For every  Storage Tile: -1
- For every  Disaster Tile: -8
- For every  Infrastructure tile: +2
- For every  Innovative Products Tile: +5

AWARDS	3 communities playing	4 communities playing
Bronze	2 or fewer points	3 or fewer points
Silver	3 - 9 points	4 - 12 points
Gold	10+ points	13 + points

If you got Bronze or Silver, play again and try to achieve gold!

Running simultaneous games at once?

Calculate total scores for each city (each game). The group with the highest score is declared the winner!

The Bioeconomy Game was also developed with support from Shantanu Patil, alumni of the University of Strathclyde and Director of MeLoop Foundation in India.

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