Imagination
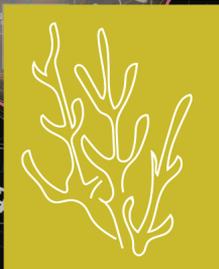## Design

MAGE

Serious Games to think about Future Coasts

MORECAMBE AREA GAMING ENVIRONMENT

ETYMONS: FRENCH – MAGE; LATIN – MAGUS
….OF EXCEPTIONAL WISDOM AND LEARNING

About

MAGE is a serious game that helps players think about coastline management, communities, natural processes, habitats, and climate change. MAGE is a series of tools to build knowledge and learning about our environment. Our Future Coast is led by Wyre Council, funded by DEFRA as part of the £200 million Flood and Coastal Innovation Programmes, which are managed by the Environment Agency.

Game GOAL

DEFRA and the Environment Agency have tasked you to manage the UK Coastline in light of Climate Change. Compete with other players to see who can manage the coast the most effectively. The coastline is at risk of erosion, habitat degradation, building development, urban flooding, and the need for farmland protection.

Can you make strategic decisions to help the people and communities living on the game maps?

One Player is nominated as the Game Master
Recommended Playing Time 45 minutes to 1.30 hours.
Ages 7+. Players 2 – 10.

https://thefloodhub.co.uk/ourfuturecoast/

Game Contents & Setup

Components

6x Game Boards
A1 Size 1:25,000 Scale.
Connect as many
Gameboards as you wish!

10x Game Characters

Game Tokens
Corresponding
to Colours on Cards

6x Facts Sheets

10x Flexi String

X- Axis Dice

Y - Axis Dice

Dice Tray &
Game Matt

Setup

Each Player Takes a Card Pack and
Sets out the deck in front of them.
Separate the cards as shown in
the image.

- Scenario Cards (**S**)
- Interaction Cards (**I**)
- Mission Cards (**M**)
- Community Value Cards (**CV**)
- About & Rules
- Customisation Cards

Card Packs

About and Rules

S   I   M   CV   Custom
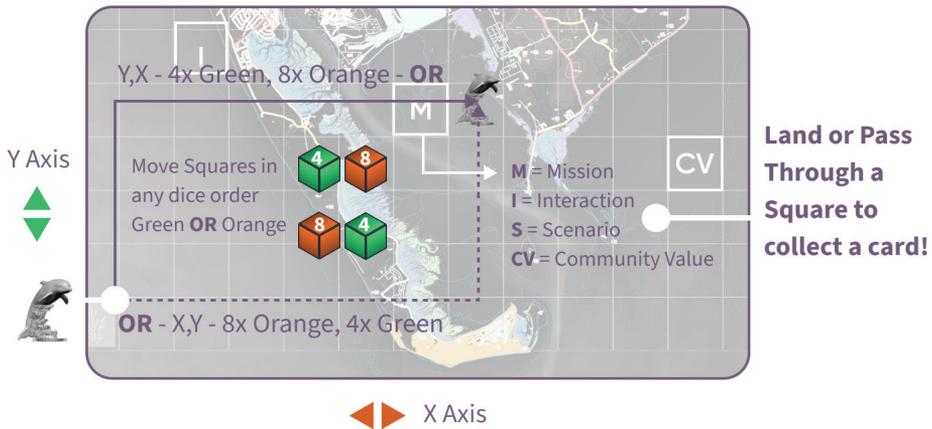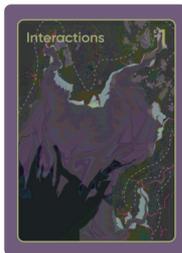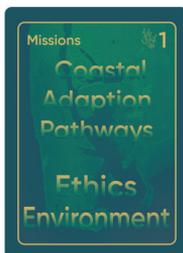
Movement

 X- Axis Dice

 Y - Axis Dice

Movement consists of a dice throw per turn, moving on the Y and X axes of the gameboard with your character. If boards are connected, continue your movement onto the squares of the connected board. Multiple players can land and be on the same square.

Movement AIM - Pass Through or Land on a Letter Square to Pick up a CARD!

Example Dice Roll - a 4 Green and an 8 Orange is thrown

Y,X - 4x Green, 8x Orange - **OR**

Y Axis

Move Squares in any dice order Green **OR** Orange

4 **8**

8 **4**

M = Mission
I = Interaction
S = Scenario
CV = Community Value

Land or Pass Through a Square to collect a card!

OR - X,Y - 8x Orange, 4x Green

X Axis

Cards

Collect a corresponding card:
M = Mission **I** = Interaction **S** = Scenario **CV** = Community Value + **CUSTOM**

Read the reverse of the card explanation and task.

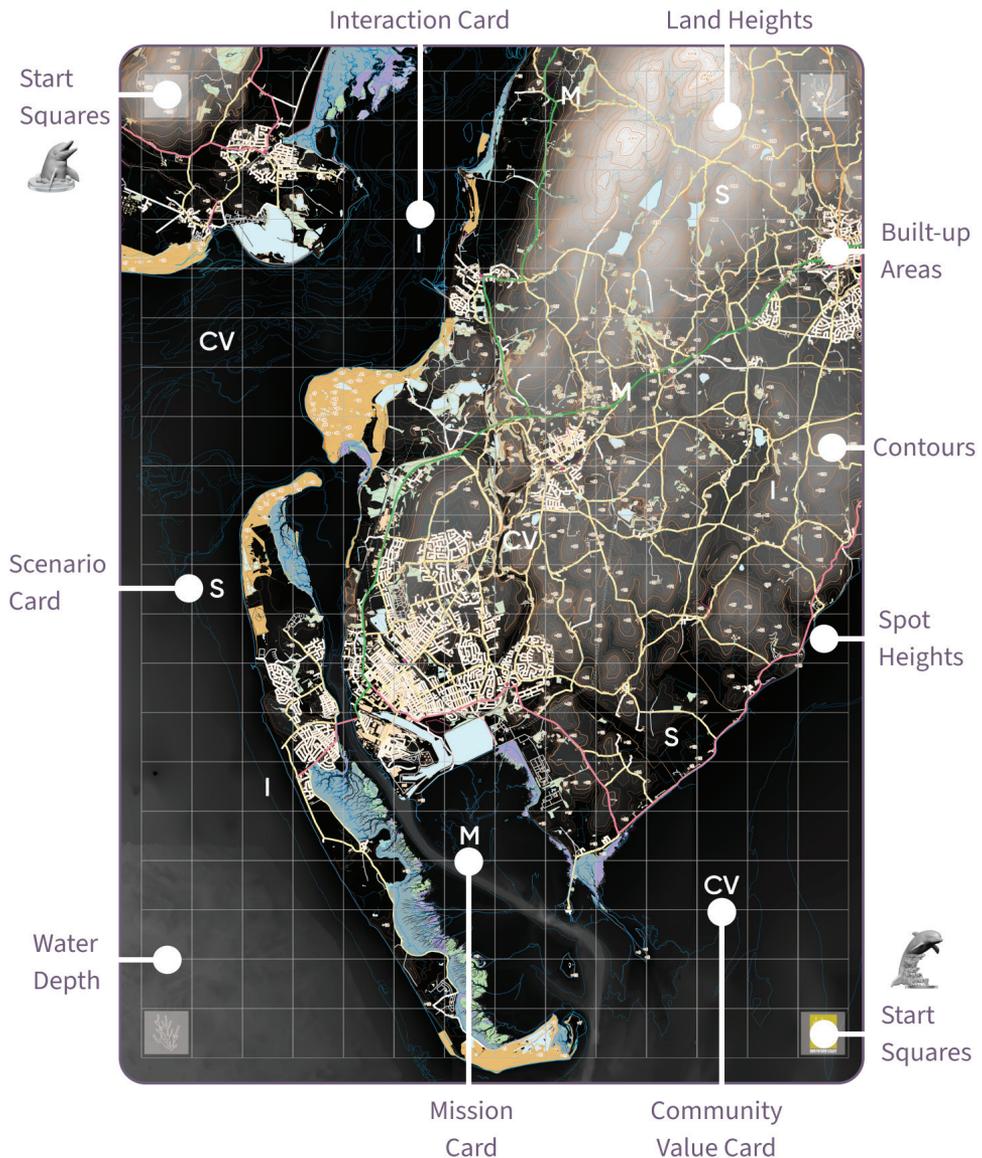**Complete 4x Cards to Win!** *Adjust to 6x cards for a longer game.

Keep All Drawn Card Types in Play for Turn Durations or Until You Complete Them!

Refer to **Gameplay Mechanics** in how to play cards.

Game Board

The game board is deliberately abstract to prevent players from becoming fixated on specific locations and geography. The scale is 1:25,000. Refer to the gameboard legend card for the map symbols. The gameboard has corresponding letters relating to the card pickup type - see **Movement**.
Start on any square.

Interaction Card

Land Heights

Start Squares

Built-up Areas

Contours

Scenario Card

Spot Heights

Water Depth

Start Squares

Mission Card

Community Value Card

Card Mechanics

Community Values 1
Give Land to the Sea

Coastal protection work may in...
changing and fixing the land or
removing structures. The goal is to
restore natural processes and use
key natural features like
saltmarshes, mudflats, and dunes to
lessen wave energy and reduce
erosion. They can also improve
water quality and biodiversity.

Respond to Players: What are
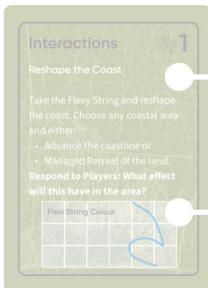your thoughts on this?

— Explanation
— Question

Community Value cards are standalone. If drawn, read the explanation. Then try to respond to players with an answer. All players vote on the answer by raising their hands.
The card is won by a majority vote.

Purpose - This dialogue card is designed to help communities discuss their coastline and articulate what matters to them.

Interactions 1
Reshape the Coast

Take the Flexy String and reshape
the coast. Choose any coastal area
and either:
• Advance the coastline or
• Managed Retreat of the land.
**Respond to Players: What effect
will this have in the area?**

Flexi String Colour

— Explanation
— TASK Flexi-String

Interaction cards are related to **Scenario** and **Mission Cards**. If drawn, read the task. Use the flexi string or corresponding colour game tokens and place them on the map. The card is won if the area is unaffected by other cards and tokens. Some Interaction cards are turn-based, e.g. 3x turns. Keep note of the card turns on a player's round using the pen and blank cards supplied. If the turns are all completed, the card is won.
Purpose - The Interaction cards are intended to show players how the coastline is managed in real life.

Scenarios 1
Climate Change has caused m...
frequent coastal inundation.
Give land to the sea.

Add **3** Light Blue Counters per
turn for 6 turns on the coastline
and move inland each time.
If an area is defended, do not add.
Remove any other counters. What
Missions can you take to avoid
this happening?
Complete this Scenario

— Explanation
— TASK Colour Token

Scenario cards are related to **Interaction** and **Mission Cards**. If drawn, read the task. Use the corresponding colour game tokens and place them on the map. The card is won if a corresponding mission card is collected and completed. Mission and Interaction cards cancel Scenario cards. Scenario cards are turn-based, e.g. 3x turns. Keep note of the card turns on a player's round using the pen and blank cards supplied. If the turns are all completed, the card is lost and returned to the deck.
**Purpose** - The scenario cards are intended to show players how climate change is affecting the coastline.

Missions 1
Extreme Flood Scenarios
Extreme coastal flooding scenarios
involve severe inundation events
caused by a combination of factors,
including storm surges, high tides, and
rising sea levels, as well as intensified
rainfall often exacerbated by climate
change and extreme weather. These
events can lead to significant damage
to coastal communities, infrastructure,
and ecosystems, with the potential for
loss of life.
**Mission: All Scenario rules are
multiplied by x2 for 3 turns.**

— Explanation
— TASK Multiplier

Mission cards are related to **Scenario** and **Interaction** Cards. If drawn, read the task. Use the corresponding colour game tokens to place them on the map, or use the multipliers. The card is won if a corresponding interaction card is collected and completed. Mission and Interaction cards cancel Scenario cards. Mission cards are turn-based, e.g. 3x turns. Keep note of the card turns on a player's round using the pen and blank cards supplied. Mission cards are completed according to the task description.
Purpose - The Mission cards are intended to show players how different positive and negative factors dynamically shape the coastline and how strategic decisions are needed.

Gameplay
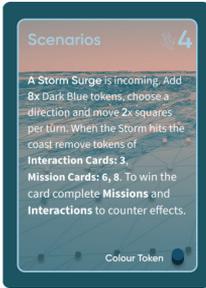
Example Scenario 4 - A Storm surge is incoming. Choose any corner of the board and place 8x storm tokens. On your turn, move 2x squares towards land. To win this card, you need to add storm defences or NBS BEFORE the storm hits land (**Interaction 4**, **Mission card 5**). Alternatively, the Radar Mission or could remove the storm tokens (**Mission Card 3**). You need to roll the dice and try to land or pass through a mission square ASAP. Another player could help if they choose to! If the Storm hits the coast unprotected remove tokens of (**Interaction 3**, **Mission Cards: 6, 8**) and return card to pile.

Storm Surge Example Play

Note:
There are 3x different ways of winning this card.
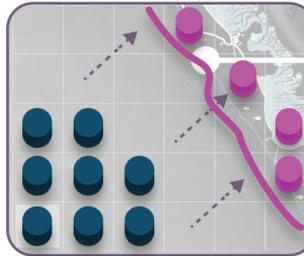
Example Strategy: Add a Flexi String + Tokens for Defence before the storm hits land!
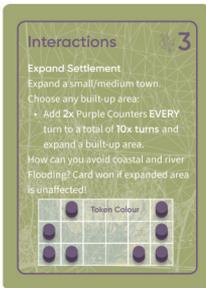
Example Interactions 3 - Towns, Villages, and Cities must expand. Choose any built-up area of the board and place 2x tokens for 10x turns. To win this card, you must ensure that the built-up area is not flooded! Use different Mission and Interaction cards to help protect the area. You need to roll the dice and try to land on or pass through a mission square ASAP. Another player could help if they choose. However, some players may deliberately target your area to block you winning this card!

Note:
There are many different ways of winning this card.

Another player floods your expansion stopping you winning the card!

Example Community Value 6 - A Player needs to locate landmarks on the gameboard. To win this card, you must understand the gameboard map. You may wish to make notes before you respond to all players. Majority vote on a good answer will win the card. Use the Legend Fact Sheet to help read the map.

Read the Map Legend to help win!

Gameplay

Missions 7

Managed Realignment

Managed realignment makes changes to the position of the shoreline in a controlled way, such as by slowing erosion or creating areas of habitat to help manage flooding. It is also often a method that replaces hard coastal defence measures and depends on natural defences to absorb or dissipate the force of waves.
Mission: - 8 tokens for 3x turns of any of your choosing for Scenario Cards: 1, 2, 3, 5. Card Won if tokens are cleared on gameboard.

Example Mission 7 - Managed Realignment. Choose Land to Sea, Coastal Flooding, Coastal Erosion (**Scenario Cards 1,3,5**) tokens on the gameboard and remove 8x per turn. To win this card, you need to clear the board of these tokens in 3x turns. Other cards that also remove tokens can also be used to complete the card in the turn limit. Another player could help if they choose to, and they can also add further tokens to stop you!

Remove up to 8 counters per turn

Other players may still add tokens!

Note:
Other types of flooding may still remain. These are different colour tokens.

Interactions 1

Reshape the Coast

Take the Flexy String and reshape the coast. Choose any coastal area and either:
- Advance the coastline or
- Managed Retreat of the land.
Respond to Players: What effect will this have in the area?

Flexi String Colour

Example Interaction 1 - Reshape the Coast. Take the flexi - string and choose any area. Either advance the coastline or retreat the land - give land to sea. To win this card, you need to explain to players why you have done this. Majority vote wins, the same rule as community value cards.

This Player advances the coast and explains why to others.

Note:
Other Flexi-string colours have different mechanics.

Missions 1

Extreme Flood Scenarios

Extreme coastal flooding happens when strong storm surges, high tides, rising sea levels, and heavy rainfall combine, often worsened by climate change. These floods can cause major damage to coastal areas, infrastructure, and ecosystems, and they can also threaten lives.
Mission: All Players Scenario Card rules are multiplied by x2 for 3x turns. *Hold card until Scenario Cards are played. Card Won if tokens cleared on gameboard.

Example Mission 1 - Extreme Flood Scenarios. All players Scenario Card token placement, if applicable, is multiplied by 2x for 3x turns. If no scenario card, hold until they appear. The card is won after 3x turns if tokens are cleared on the gameboard, but this makes winning other cards more difficult.

This Player has the Land to Sea Scenario Card and must place 3x tokens per turn.
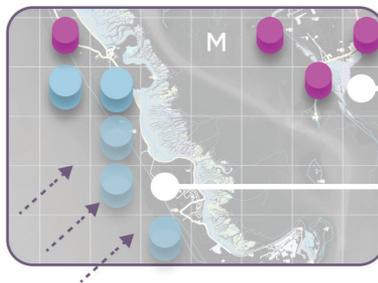They also have this mission card 1, so must place an additional 3x counters!

Note:
This card effects all other players Scenario Cards!

Gameplay

Example Scenario 5 - Coastal erosion. Add the light blue tokens to an area without saltmarsh and area that is not defended. To win land on a mission card ASAP. Managed realignment **Mission Card 7** will help to win. Other cards that also remove tokens can also be used to complete the card in the turn limit. Another player could help if they choose to, and they can also add further tokens to stop you!

Scenarios 5

Coastal erosion is the wearing away of the land by the sea. Add **3x** Light Blue tokens per turn for **6x** turns on the coastline showing erosion. If an area is defended, do not add. To win the card complete **Missions** and **Interactions** to counter effects.

Colour Token

Defended Pink & Saltmarsh Area on Gameboard

Note:
Other types of flooding may still remain. These are different colour tokens.

Counters can only be added here

Gameplay Tactics - Remember that Community Value cards are standalone. Scenario, Mission and Interaction cards are all related. Think about the quickest way to win 4 cards. Look around the players and check their progress. You may wish to play and place tokens and flexi-string in wider areas.

The purpose of the game is to create discussion about coastal management and decision making!

Player 1 plays Mission Card 8 - Hold the Line and adds a Flexi String

Player 2 plays Scenario Card 2 - Coastal Flooding and adds tokens. Player 1's mission in now voided.
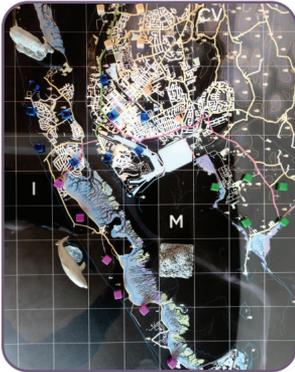
Custom Cards 1

MAGE

Imagination
Design

Custom Missions 1 - After several plays of MAGE, you may wish to create your own rules, and add additional colour tokens. You may wish to play a specific issue, place or process. Test the new rule before full play.

Custom Cards

Customise this card for Community Values, Interactions, Missions & Scenarios.

New Rules Here...

Game Counter
Colour / Shape

Note:
Think about the different cards the new rule effects!

Gameplay

Top - Cockerham Marshes Drone Data

Left - Barrow Gameplay

Bottom - Lancaster Gameplay

Want to Contribute More to MAGE? Try Our Mobile APP!

Map.Social – MAGE
https://map.social/MAGE

FAQs

Setup
1. This serious game involves turn-based dialogue with (2-10) players.
2. All players must choose a starter square for their game character.
3. Players may end the game at any time.
4. To win, complete a total of 4 cards. *6 Cards for extended play.
5. All cards must be set face down. Any card can be chosen when landing on the corresponding letter on the gameboard.

Gameplay Play
1. Players can move in any direction they choose along / x-axis and the y-axis.
2. Players who land or pass through Values / Interaction /Mission / Scenario Squares must draw a card.
3. Players may still complete values and interaction cards if no Scenario or Mission card is held.
4. Keep note of the number of player turns in relation to cards.
5. To complete Scenarios, you need to find the correct Missions.
6. Use the correct colour tokens in relation to cards.
7. Multiple colour token types can be added to the same game square.
8. Return any incomplete / non-won cards to the pile.

Dialogue
1. If there is any disagreement among players, voting must occur, and the majority rules.
2. In community value tasks, the repetition of required elements more than twice is not allowed. A new concept must be presented each time.
3. Players should make notes as they progress.
4. Any customisation and counters must be explained to all players, and testing is recommended.

Gamesmaster
1. If any gameplay disagreement takes place, the Gamesmaster overrules.
2. Some younger players may need assistance understanding the gameplay and explanations. Refer to Fact Sheets for additional help.
3. Design Custom Cards Before Gameplay and Test. This could be focused on a specific place or issue.

Game Data Used
1. National Coastal Erosion Risk Mapping (NCERM) - National (2024). Scenarios to 2055 & 2105. Shoreline Management Plans (SMP).
2. DEFRA, EA OGL Data - Spatial Flood Defences Including Standardised Attributes (AIMS).
3. DEFRA, EA OGL Data - Saltmarsh Extents 2016-2019.
4. Marine Conservation Zones - Natural England.
5. Sites of Special Scientific Interest - Natural England.
6. DEFRA, EA OGL Data - SurfZone DEM 2019 (2m).
7. Ordnance Survey, Open Data, https://osdatahub.os.uk/downloads/open
8. DEFRA, Natural England, The Priority Habitat Inventory.
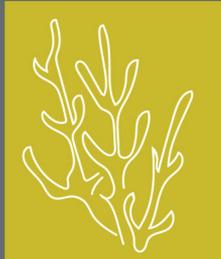
OUR FUTURE COAST
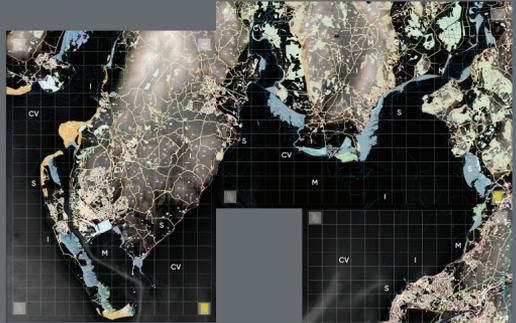
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