Welcome to: Riverlands

Riverlands: A region full of promise

TREASURE
Interreg North Sea
Co-funded by the European Union
NORIA SUSTAINABLE INNOVATORS
FRISSE BLIKKEN

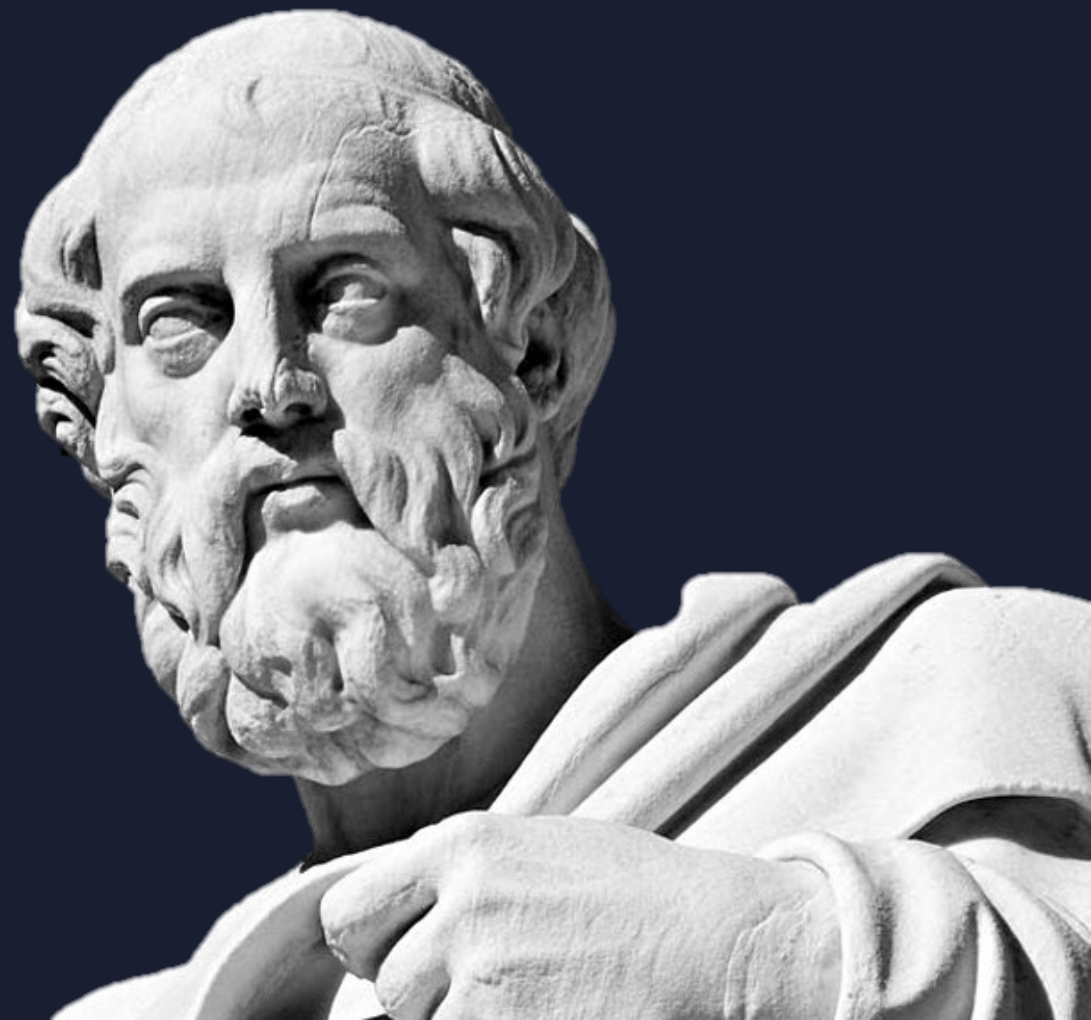
Serious Game

A game designed to spread awareness against plastic pollution in the water.

Please reach out at info@noria.earth for any inquiries

“You can discover more about a person in an hour of play than in a year of conversation”

- Plato



Game Rules

Embrace the chaos!

Welcome to: Riverlands

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How to win?!

- Every role has two key values. Make sure these values are as high as possible by the end of the game.
- Your final score is the sum of these two values minus the amount of plastic in your region and in the sea.

Example:

- Shipping access is 10 and Water level is 8 = 18 points
- the amount of plastic in the sea is 9, and in your waters 6 = 15 points
- Total is 3 points

Welcome to: Riverlands

Introduction

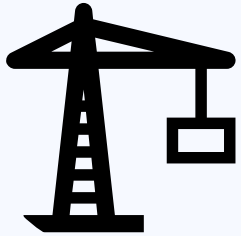
Introduce yourself in your new role: who are you and what do you want to achieve?

What happens per round

- Each round consists of 3 turns.
- Each player can do one action per turn.
- We play a total of 5 rounds.
- Each round, plastic moves and new plastic enters the board.
- Each round you earn money (standard + from investments).

Playing structure

- PAYOUT
- PLASTIC ENTERS THE WATER
- SCENARIO
- PLAY 3 TURNS
- REMOVE PLASTIC
- MOVE PLASTICS



MAKE AN INVESTMENT

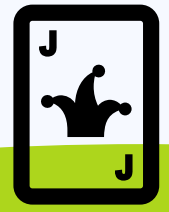
Pay and place an investment on an available spot

DRAW A CARD

Draw a card of your choice

PLAY A CARD

Play a card of your choice



LET’s TALK RESULTS!

Summit

- How is it going?
- Do we like the results so far?
- Do we want to introduce new winning conditions?

And the winner is...

Reflectie

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What happened?

- What happened?
- What was the goal of the game?
- What were the three biggest challenges?
- List 3 actions/behaviors that helped you in the game.
- List 3 actions/behaviors that did not help.

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Time for a Reflection

- What influence did the different roles have on the game?
- What was the best way to remove plastic?
- How important was cooperation?
- How does this game relate to the real world?
- What lessons can you apply in real life?

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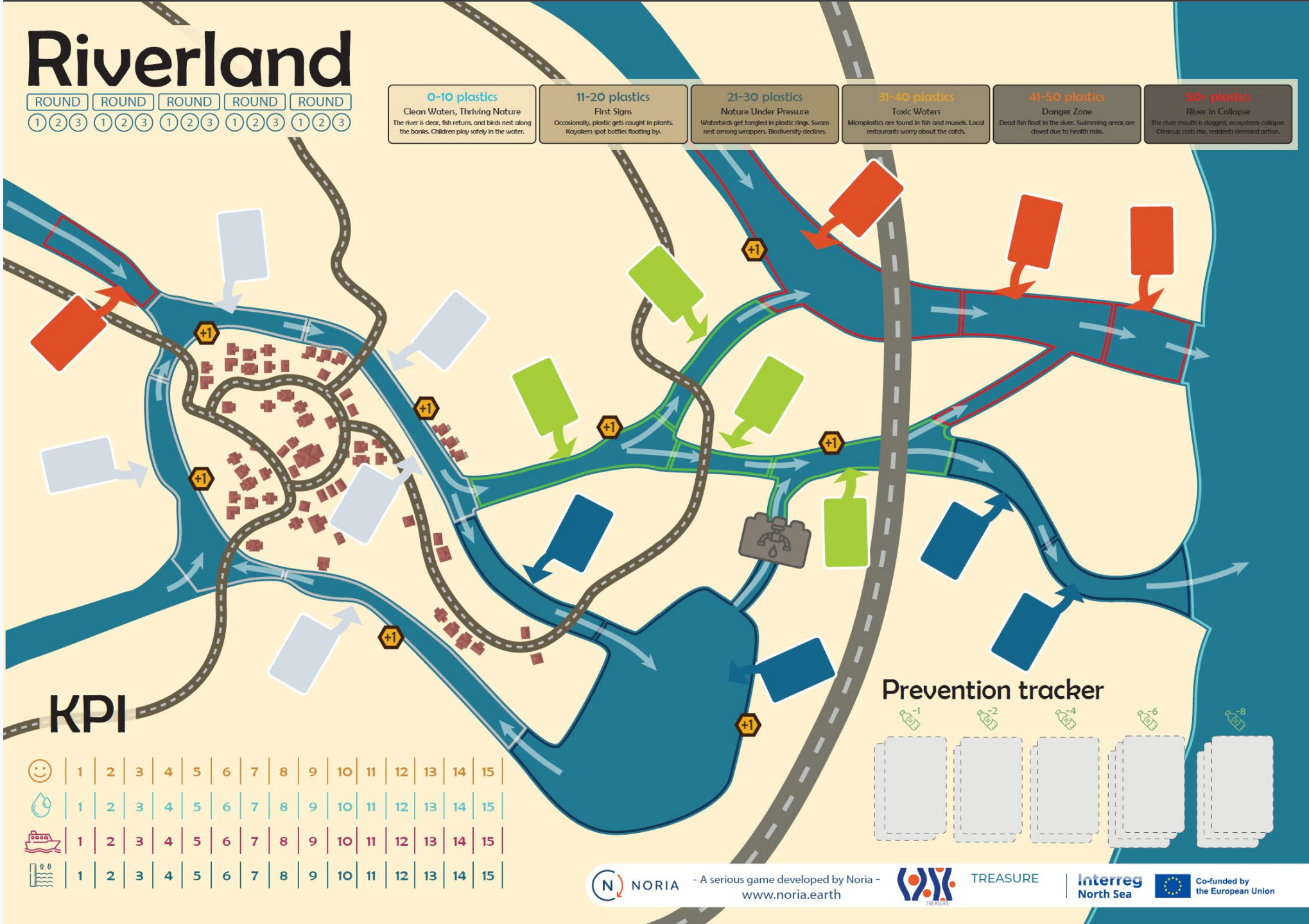
Time for action

- Time for Action
- Choose a partner from your network who is also affected by the plastic problem but works in a different institution. What could you two do together to tackle the plastic issue? What needs does this partner have that you can meet? What can you offer this partner in cooperation? Draft a creative message to reach out and schedule a meeting. How can you inspire or activate the partner around this issue? Send the message!

The Game Board



The Gaming Cards

ACTION
Floating debris screen at bridge

ACTION
School education campaign

ACTION
Temporary closure of recreation area

ACTION
Cleanup action

ACTION
Optimize lock operations

ACTION
Upgrade pumping station capacity

ACTION
flushing the city canals

ACTION
Create green roofs for water buffering

ACTION
Build emergency water storage basins

ACTION
Maintain water level
(Zet gemaal open, plastic stroom door naar volgende vak)

ACTION
SUP cleanup

ACTION
Free trash bag giveaway campaign

ACTION
Big city festival by the water

ACTION
Remove plastic from reeds

ACTION
Stricter discharge monitoring

ACTION
Intensive water purification

ACTION
Washing machine filters now remove micro plastic

ACTION
Create recreational wetlands

ACTION
Improve sewage overflow management

ACTION
Improve waterway signage and signals

ACTION
Ban on single-use plastic

ACTION
Dredging of channels

ACTION
Issue more boating permits

ACTION
Cut reeds

ACTION
Restore eco-friendly riverbanks

ACTION
Remove obstacles from waterways

ACTION
BBQ spots along the water

ACTION
Plant aquatic vegetation

ACTION
Install water level sensors

ACTION
Speed limit on waterway

PREVENTION
Launch school awareness campaign

PREVENTION
Engage influencers to promote anti-littering

PREVENTION
No cigarette butts on the street campaign

PREVENTION
Develop company waste reduction agreements

PREVENTION
Local ban on single-use plastic straws

PREVENTION
Install anti-litter signage at hotspots

PREVENTION
Introduce deposit scheme for coffee cups

PREVENTION
Impose plastic reduction requirements for festivals

PREVENTION
Initiate street sweeper pilot program

PREVENTION
Launch proactive street cleaning program

PREVENTION
Distribute reusable shopping bags in neighborhoods

PREVENTION
Install street drain filters

PREVENTION
Include waste reduction clauses in construction contracts

PREVENTION
Remove broken public bins

PREVENTION
Provide reusable water bottles at schools

PREVENTION
Install microplastic filters in washing machines

PREVENTION
Require closed containers at construction sites

PREVENTION
Encourage zero-waste community events

PREVENTION
Enable community litter reporting

PREVENTION
Public challenge to reduce plastic packaging

PREVENTION
Replace plastic confetti with eco alternatives

PREVENTION
Ban single-use plastics at events

PREVENTION
Promote plastic-free terraces

PREVENTION
Provide company training on wastewater management

PREVENTION
Mandatory recycling stations at marinas

PREVENTION
Launch plastic-free shopping campaign

PREVENTION
Add more public waste bins

PREVENTION
Promote refill stations for household cleaning products

PREVENTION
Deposit system for plastic bottles

PREVENTION
Introduce local packaging-free grocery days

PREVENTION
Launch plastic-free school lunch programs

RESEARCH
Social Media Behavior Research
Reduces plastic by -1 for every prevention card you have played.

RESEARCH
Effectiveness Study of School Programs
Reduces plastic by -1 for every prevention card you have played.

RESEARCH
Study on plastic impact on flora/fauna

RESEARCH
Longitudinal study of nutrient levels in rivers

RESEARCH
Citizen sensors deployed in pilot projects

RESEARCH
Study of sustainable dock design
One-time effect for all marinas and ports

RESEARCH
Install additional water quality sensors

RESEARCH
Local engagement campaign

RESEARCH
Study on new fish migration pathways

RESEARCH
Microplastic measurement launched

RESEARCH
Survey local residents

RESEARCH
Prevention Campaign Impact Study
Reduces plastic by -1 for every prevention card you have played.

RESEARCH
Study of urban rainwater retention performance

RESEARCH
Pilot project on urban rainwater gardens

RESEARCH
Multi-stakeholder waste management pilot
One-time effect for all catching systems

RESEARCH
Improvement of capture system
One-time effect for all catching systems

RESEARCH
Adjust waterway traffic routes

RESEARCH
Wastewater treatment plant improvements
One-time effect for all wastewater treatment plants.

RESEARCH
Study on behavior of recreationists & waste

RESEARCH
Test with AI camera detection

RESEARCH
GIS visualizes waste movement

RESEARCH
OSPAR analysis shows source of waste

RESEARCH
Urban water storage

RESEARCH
Study on plastic impact on flora/fauna

RESEARCH
GPS study of waste movement

RESEARCH
Analysis of plastic flows

RESEARCH
Emergency plastic removal operation

RESEARCH
Feasibility study for automated river cleaning

RESEARCH
Study on plastic hotspots

RESEARCH
Residential area improvements
One-time effect for all built residential areas

RESEARCH
Feasibility study for canal widening

RESEARCH
Insight into plastic at overflows

RESEARCH
Pilot of smart litter collection systems

RIVERMASTER

As River Master, you manage the main waterways of Riverlands. You are responsible for safe ship navigation and for ensuring balanced water levels to prevent flooding and maintain water supply. You keep the major rivers safe for everyone.

You win if the KPIs for Shipping Access and Water Level are as high as possible.

Per round: +1

SPECIAL:
When drawing research cards, you may draw 4 and keep 2.

WATER WARDEN

As Water Warden, you are responsible for water quality. You manage wastewater treatment plants and the lock system of Riverlands. You ensure clean water and stable water levels in the smaller waterways of the region.

You win if the KPIs for Water Quality and Water Level are as high as possible.

Per round: +1 -1

SPECIAL:
You may remove 1 plastic from your waters each turn.

CITY PIONEER

As City Pioneers, you look after the citizens of Riverlands. You manage the lively village of Cirkeldam, a beautiful town with big city ambitions and iconic canals. Your goal is to keep the canals clean enough for swimming.

You win if the KPIs for Citizen Satisfaction and Water Quality are as high as possible.

Per round: +1

SPECIAL:
When drawing prevention cards, you may immediately draw 2 instead of 1.

REGION EXPLORER

As Region Explorer, you strive to make this area one of the best in the country. You ensure people can live and work here with joy and economic prosperity. Shipping Access is critical to the region, and you safeguard it.

You win if the KPIs for Shipping Access and Citizen Satisfaction are as high as possible.

Per round: +2

SPECIAL:
You manage a larger budget, so you earn +2 coins per round.

GAME PLAY

PAYOUT → PLASTIC ENTERS THE WATER → SCENARIO

ROUND 1 2 3 | ROUND 1 2 3 | ROUND 1 2 3 | ROUND 1 2 3 | ROUND 1 2 3

INVESTMENT — DRAW A CARD — PLAY A CARD

REMOVE PLASTIC → MOVE PLASTICS

	Cost	Per round	KPI
Catching system small	1	-1	+1
Catching system large	2	-2	+2 -2
Residential area	1	+1 +1	+3 -2
Marina	1	+1 +2	+2 +1
Industrial port	2	+2 +2 +1	-3 +3
Pumping station	2		+1 +1 +2
Dike reinforcement	2		+1 +1 +1
Lock	3	+1 +1	+1 +2 +2
Recreational area	1	+1	+3 -2
Extra bridge	3	+1 +1	+2 -1
WWTP	3	+1	+3
River diversion	2		-3 +3 +3
Underwater dam	1		-1 +2 +1

Catching System Small
Remove 1 plastic per round
-1

Catching System Large
Remove 2 plastic per round
-2

Residential Area
Gain 1 coin per round and +1 plastic enters water per round
+1 +1

Marina
Gain 1 coin per round and +2 plastic enters water per round
+1 +2

Industrial Harbor
Gain 2 coins per round and +2 plastic enters water per round
+2 +2

Pumping Station
+1 plastic enters water per round
+1

Dike Reinforcement
No effect

Lock
Gain 1 coin per round and +1 plastic enters water per round
+1 +1

Recreational Area
+1 plastic enters water per round
+1

Extra Bridge
Gain 1 coin per round and +1 plastic enters water per round
+1

Wastewater Treatment Plant (WWTP)
Gain 1 coin per round
+1

River Diversion
No effect

Underwater Dam
No effect

SCENARIO
Plastic from upstream neighbors
Large amounts of plastic are flowing in from neighboring countries. Unfortunately, you have no control over this.

EFFECT
Plastic +3 at all inflow locations of other rivers.

SCENARIO
Tires cause excessive microplastics
Roadside water bodies receive microplastics due to tire wear.

EFFECT
Plastic +1 at (all) waterways adjacent to roads.

SCENARIO
Major marathon event
The annual Freewaterland marathon takes place, crossing both rural and urban areas.

EFFECT
Plastic +1 along the route of the marathon.

SCENARIO
Cargo ship accident
A ship accidentally dumps plastic cargo into the water.

EFFECT
Plastic +3 at all water areas adjacent to industrial ports.

SCENARIO
Plastic monitoring uncertainty
Improved monitoring techniques reveal that much more plastic passes through the system than previously estimated. The actual plastic levels are significantly higher.

EFFECT
Everywhere there is plastic: add +1 extra plastic.

SCENARIO
Reed cutting operation
Reeds are cut to improve navigation, but this also releases large amounts of microplastic.

EFFECT
Plastic +1 in all green and red areas.

SCENARIO
Heavy rainfall
Due to heavy rainfall, the pumping station is activated and water is diverted quickly.

EFFECT
Plastic flows through the pumping station and all plastic moves 2 steps downstream.