

Pipes – the rules of the game

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1 Introduction

Pipes is the computer-aided board game for one or more players. To play, an application and printed boards are required. Both are available at <http://pipes.w8.pl/>.

2 Preparing to play

Before playing, print out the game boards and run the application (on a smartphone, a tablet, or a computer). Each player receives one game board and must be able to see the screen of the device running the application.

The board consists of square fields in which players draw pipeline elements, according to the rules given in Section 3. Most of the board's squares are empty. Some are occupied by walls. Their distribution is random, varying from board to board. One of the squares near the center of the board is occupied by a starting valve, from which water will drain (according to the rules described in Section 4). To the right of the board are the icons of special actions, which are described in Table 2.

3 Game turns and making moves

In subsequent turns of the game, the application displays the pipeline elements that players draw on their boards, according to the following rules:

- On each turn, a player can either draw the displayed element in any empty field of the board, or pass without drawing it.
- Additionally, the player can perform one or more special actions, which are described in Table 2. The player must cross out the icon of the performed action in order to know how many individual actions they can use until the end of the game.
- Drawn pipeline elements cannot be rotated unless the appropriate special action is used.

	curved				straight		crossing
inflow	outflow direction						
left	end	down	end	up	right	end	right
right	down	end	up	end	left	end	left
up	end	end	right	left	end	down	down
down	right	left	end	end	end	up	up

Table 1: Pipeline elements. The bottom part of the table gives the direction of water outflow, depending on the direction from which the water flows into the individual elements. The *end* word indicates that the water cannot flow from the given direction. Thus, its flow ends, and then the player is out of the game.

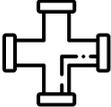
icon	the name of the action and how it works
	Rotation: allows the drawn pipe to be rotated 90, 180 or 270 degrees.
	Crossing: allows an additional crossing to be placed on the board.
	Teleport: allows a teleport to be placed on the board. The teleport consists of two ends. Each end should be placed on the empty fields of the board and attached to one edge (left, right, bottom or top) of the field. Both ends of the teleport can also be placed on the same empty field by attaching them to different edges. Water can flow into either end of the teleport, but only from the side to which it is attached. Then the water flows out the other end towards the edge it is attached. It takes the same amount of time for the water to flow through the entire teleport as it does for any other piece of the pipeline (i.e., usually one round).

Table 2: Special actions. In their turn, a player may perform one or more special actions. However, the number of individual special actions a player can perform throughout the game is limited. To know how many actions are left, the player must cross out the icons of the actions used.

- The time for choosing a location and drawing the element, and possibly using special actions, is limited to one minute. After this time (which is indicated by the application), the player must pass.

The turn ends after one minute or when all players announce that they have made their moves. Then, to continue playing, tap or click anywhere on the screen in the application, or press the space bar, enter, or right arrow.

4 Water flow rounds

The number of completed turns is visualized by the application up to the twelfth turn. Beginning at the end of the twelfth turn, subsequent turns are interleaved with *rounds of flowing water*, which are indicated by the application's flashing blue screen. In the flowing water rounds, players mark the flowing water on their boards by either painting over or crossing out consecutive pipeline pieces according to the following rules:

- Water flows out of the starting valve. The first field the water flows into and fills (immediately after the twelfth turn) is the field adjacent to the valve from its outlet side.
- Water flows through the pipeline elements according to the rules in Table 1.
- The flow of water ends if the field into which the water enters is either: empty or occupied by a wall or a piece of piping oriented in a way that blocks the water from entering it. When the water flow ends, the player is out of the game.
- Water can flow through the same crossing twice, once horizontally and once vertically.
- Water flows at a speed of one field per round. However, if any player's water flows through any crossing a second time (which the player must inform the others of), the other players' water flows an additional field. This rule applies several times in a single round if the water recrosses the crossings of several players.

A round of flowing water ends when all players acknowledge that they have completed it. Then, to continue playing, tap or click anywhere on the screen in the application, or press the space bar, enter, or right arrow.

5 End of the game and determination of the winner

The game ends when all but one player is eliminated. The winner is the player who was not eliminated. If all players are eliminated the game ends and the players that were the last to be eliminated share the victory.