REABSORPTION!
THE GAME OF LIFE

OBJECT:

IN ORDER TO WIN, A PLAYER MUST BE THE FIRST TO REACH THE COLLECTING DUCT. THIS IS NO EASY TASK, AS PLAYERS CAN BE REABSORBED MULTIPLE TIMES A LONG THE WAY.

CONTENTS:

- **GAME PIECES:** PLAYERS WILL PLAY AS WATER. EACH PLAYER WILL CHOOSE ONE OF THE FOLLOWING GAME PIECES TO TRACK HIS OR HER POSITION THROUGHOUT GAMEPLAY.

![Game Pieces](image)

- WATER MOLECULE  ICE CUBE  KETTLE  WATER BOTTLE

- **SIX-SIDED DICE:** PLAYERS WILL ROLL THE DICE TO ADVANCE ACROSS THE BOARD

- **GAME BOARD**

GAME RULES:

- TO DETERMINE THE ORDER IN WHICH PLAYERS WILL MOVE, EACH PLAYER WILL ROLL THE DICE. THE HIGHEST ROLL WILL GO FIRST, THEN PLAYERS
Will move counterclockwise. In the event of a tie, tied players will re-roll until one has rolled a higher number.

- **To Begin Game Play.** Each player will begin at the glomerulus. The player that rolled the highest number will begin by rolling the dice. The player will advance the number of spaces indicated on the dice.

  - **Green Spaces** – If a player lands on a green space, he or she will draw a card from the green deck and follow the instructions on the card. Green cards will present situations in which water would not be reabsorbed. Green cards allow the player to advance across the board.

  - **Red Spaces** – If a player lands on a red space, he or she will draw a card from the red deck and follow the instructions on the card. Red cards will present situations in which water would be reabsorbed. Red cards will force the players to move backwards.

  - **Blue Spaces** – If a player lands on a blue space, he or she will draw a card from the blue deck and follow the instructions on the card. Blue cards can be either helpful or hurtful. If a player draws a blue card, he or she can keep the card turned over until he or she finds it useful. Blue cards can also be used against another player if indicated in the card’s instructions.

- Players will only draw cards as a result of a dice roll at the beginning of his or her turn.

  - **Ex:** If drawing a green card instructs a player to advance 3 spaces, and the new space is red, the player will take no action (he or she will not draw a red card).

- **Loop of Henle.** Once players reach the descending limb of the loop of Henle they will stop at the gray space reading "STOP".
- 20% of the filtrate is reabsorbed at the loop of Henle. In order to move forward, players will roll the dice.
- **If a 6 is rolled**, that player must move back to the starting line.
- **If a 1, 2, 3, 4 or 5 is rolled**, the player may move to the blue space on the ascending limb of the loop of Henle and draw a blue card.
- **The ascending limb is impermeable to water**, so players are safe from reabsorption on the ascending limb. Other players cannot play a reabsorption card against another player in the ascending limb of the loop of Henle.

- A player wins the game when he or she reaches the collecting duct first.

**Sample Cards**

**Excretion**

- **Homeostasis**
  - The main function of your kidneys is to regulate water and salt levels in your body.
  - Your kidneys are healthy and regulating water and salt levels well. Move forward 2 spaces.

**Reabsorption**

- **Aldosterone**
  - A hormone that is essential for sodium conservation in the kidneys.
  - Blood pressure is too low. Aldosterone is secreted to increase sodium and water reabsorption. Move back to start.

**Wild Card**

- **ANH (Atrial Natriuretic Hormone)**
  - A hormone that stimulates secretion of sodium and water.
  - Stretch receptors in the heart have detected high BP. ANH is released. You may play this card one time to avoid a reabsorption event.

**Excretion**

- **Macula densa**
  - An area of specialized cells in the distal tubule that detects concentration of sodium.
  - Your macula densa detects high levels of sodium. Aldosterone secretion is inhibited. Move forward 3 spaces.

**Reabsorption**

- **Dehydration**
  - When your body does not have enough fluid, or is not replacing fluid fast enough.
  - Your hypothalamus senses that you are dehydrated and releases ADH. Move back 3 spaces.

**Wild Card**

- **ADH (Antidiuretic Hormone)**
  - A hormone that opens aquaporins and increases reabsorption.
  - When you play this card against another player, he or she must move back 5 spaces.