Capturing Science Contest 2018  
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**Title:** Reabsorption: A Board Game for Life

As humans, we are approximately 60% water. We need water to survive, and because water is such an important aspect of life, it is important to understand the complex ways in which our bodies regulate water levels. This board game aims to teach players about the regulation of water in our bodies through reabsorption of water in the kidneys. The game board is designed to resemble the winding tubes of a nephron, the functional unit of the kidney. As blood circulates through the body, it carries water, glucose, electrolytes, etc. When it reaches the kidneys, blood is filtered from the glomerulus. This is where players will start. Filtrate consists of water, glucose, salts and urea. In an average human, 180 liters of filtrate is filtered out of the blood at the glomerulus a day. However, the volume of filtrate excreted as urine is only 1-2 liters a day. This means that approximately 99% of the filtrate is reabsorbed. To win this game, a player must make it through the nephron and into the collecting duct without being reabsorbed. Players will play as water, and they can choose to be represented by one of four game pieces: a water molecule, an ice cube, a water bottle or a kettle. Detailed instructions are included in the game, but in general, players will roll a 6-sided dice to move forward. depending on the color of the space a player lands on, he or she will pick up a corresponding card that will either help the player move forward or cause the player to be reabsorbed. Each card presents a real-life situation that will help to teach players about water regulation in the kidneys.

Sources:  
Li, Oliver “Physiology of the Kidneys.” VPHY 3100. University of Georgia, Athens. 12 November 2018. Lecture.