

## **Directions for water cycle game**

**Materials:** 1 six sided die, two game boards -- the one with Water Cycle Game goes on the left of the other one. This should allow the arrows between sheets of paper to touch. You may want to photocopy onto ledger paper or tape the sheets together. Copy the "Water Used By People" cards, and then cut them apart so you have 9 cards. These are placed text down on the "draw" pile on the left side of the board.

Each player needs a marker to move around the board.

**Number of players:** This game works well with 3-6 people.

**Object:** Be the first person to pass through the space "Water Forms a Cloud" three times or five times whatever you want depending on time available. (The real object is to learn more about the water cycle. Many students won't take it seriously if there isn't a winner.)

### **Game Play.**

Players may place their marker anywhere they would like. After all this is a cycle with no starting point.

Unlike many board games, the die determines where the players move, not how many squares they move. A move is one box unless the instructions say otherwise. Follow the arrows from each square. Some squares have several arrows, and in these cases, which arrow to follow is determined by the role of the die. I like to have the students read aloud the squares so others can learn what is happening.

Example: If the marker is on "Your water drop falls as snow" on the player's next turn, roll the die. If a 3, follow the path to the surface water (which will take the player to the other sheet of paper). If a 1, 2, 4, 5, or 6 the player stays on the "Your water drop falls as snow" space until the next turn. Then roll again. The player will stay there until a 3 is rolled.

Questions to ask players at the end:

1. Were there places where you got stuck? Why does the game keep you in the ocean, or in glaciers? (This water in these areas don't circulate much. In the ocean if the water is not near the coast or in the top 100 m of water, it isn't likely to evaporate any time soon. With the glaciers, water on the bottom of the ice in Antarctica has been there for 450,000 years.)
2. What part of the water cycle is like how the cycle is shown in books? (The far left column ocean to cloud is sometimes all that is seen. It is different because it also puts people into it.)

3. Did anyone get “Used By People?” What happened to you? (Most uses “get flushed” because most water in the home goes down the drain. You could make up more of these cards with different uses.)
4. Did anyone get stuck in the used by people loop? What does this represent in the real world? (many surface waters get used by people and then they go downstream to be used again. As an example, think of the water in the Mississippi. Even in Atlanta, Gwinnett County pulls water out of Lake Lanier, then Atlanta pulls it out below the Buford Dam, eventually water from Atlanta is used again in Columbus.)
5. Based on this game, how much of the water on the Earth is actually available to people? (Only a small amount. Most of the water is in the ocean and another large part is frozen. At some point when students express frustration about being in the ocean for a long time, say that the game really needs a 20 or 100 sided die where you still need to roll a 6 to evaporate. With an average ocean depth of 5 km, most of the water can go thousands of years without evaporating.)
6. You can ask other questions, like why does it take several turns to go from the ocean to cloud, or why two numbers fall over land -- 33% closest die combinations to land water area,
7. What was their reaction to the game? How does the game represent accurately the water cycle? How does it introduce inaccuracies?