

## Water Cycle Game

### Objective:

Students will model the water cycle and how pollution from houses can permeate the entire system. Students will travel to different locations in the water cycle based on the roll of a die.

### Locations:

- Human
- Animal
- Plant
- Clouds
- Soil
- Ocean
- House
- Wastewater Treatment Facility
- Source Water

### Materials:

- 9 Location Card Decks, each with 6 cards
- 2 copies of the House and Human Location Information Sheets and 1 copy of the other 7 Location Information Sheets
- 1 Water Cycle Diagram projected in the front of the classroom
- 1 Student Worksheet for every pair of students – about 14
- 4 bottles of dark unsweetened tea
- 4 containers of small plastic beads
- 1 small strainer
- 35 small jars
  - 33 with a small amount of water
  - 2 that are empty
- One large bowl
- 9 Location Signs, each with the name of a different location on it
- 3 rolls of paper towels
- 8 tablespoons
- 1 box to hold the extra jars

### Activity Preparation:

1. Set up 9 stations to represent the 9 locations listed above in the classroom, each marked by one of the Location Signs. The House and Human locations will need more space than the other locations.
2. Place the corresponding Location Information Sheet and Card Deck at each station. The House and Human locations will have 2 Location Information Sheets each.
3. Place the bowl, 1 roll of paper towels, and the 2 empty jars at the Wastewater Treatment Facility location.
4. Place 2 containers of beads, 2 bottles of tea, 4 tablespoons, and 1 roll of paper towels at the Human location.

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5. Place 2 containers of beads, 2 bottles of tea, 4 tablespoons, and 1 roll of paper towels at the House location.
6. Place the box at the Clouds location.

### Activity Procedure:

1. Introduce the concept of the water cycle.
2. Introduce the concept of household water pollution and CEC's.
3. Divide the class into groups of 2.
4. Hand out the Student Worksheet to each group and introduce the game.
5. Give each group a jar of clean water. Place all extras in the box at the Cloud location.
6. Have half of the groups start at the House location and the other half start at the Human location.
7. As students start the game, they will follow the instructions on the Location Information Sheet at the House or Human location.
8. Students will complete a short activity and then fill out one row of their worksheets. The activity at the House and Human locations is to put pollution (tea and beads) into their water.
9. On their worksheets, each group will write their current location, the number of spoonfuls of tea in their jar, and the number of spoonfuls of beads in their jar after completing the activity.
10. Once the activity is completed and their worksheet is filled out, each group will take a turn drawing a card from the House or Human location's Card Deck. This card will tell them which location to go to next.
11. At each location, groups will complete an activity, fill out their worksheet, and draw a card to determine their next location.
12. Most activities at the stations involve simply choosing a question to answer. If students go to the same location multiple times, they should choose a different question to answer each time. Their answer should be written down on their worksheet. The House, Human, Wastewater Treatment Facility, and the Cloud locations are slightly more complicated.
  - a. At the House and Human locations, groups place one spoonful of tea and one spoonful of beads in their jar, as outlined above.
  - b. At the Wastewater Treatment Facility, groups filter their water through a strainer, into another jar, thereby removing any beads. They will put the beads they filter out in the large bowl at the location.
  - c. When a group rolls to go to the Cloud station, if their water is polluted, they will leave their jar of water at their current station. At the Clouds station they will get a new jar with clean water.

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13. Groups move at their own pace through the game. IES members supervise 2-3 specific locations each, guiding students and answering questions.
14. Have students play the game for about 15 minutes.
15. At the end of the last round, have the students place their jars at their final location, next to any jars that were left there. Discuss how pollution traveled from the House and Human locations to other locations in the water cycle. Is there one location that has more pollution than the others? One with less? How much pollution was filtered into the bowl at the Wastewater Treatment Facility location?
16. Discuss the answers students had for the activity questions at some of the locations.