

An Incredible Journey Through the Great Swamp Watershed

An *Incredible Journey Through the Great Swamp Watershed* is adapted from the Incredible Journey activity in the [Project WET Curriculum and Activity Guide](#) (see [Resources for Educators](#) section for more information on Project WET). In the activity, students act as water molecules, moving from one part of the water cycle to another based on clues they find at each "station."

Materials:

- clues (provided with this exercise)
- business size envelopes or larger
- dark colored marker
- tape

To prepare the activity, cut the clues into individual strips. Each clue has a station location written on the back. Label each envelope with a station name and place the relevant strips in the envelopes (e.g, all the Primrose Brook clues go in the Primrose Brook envelope). Students can illustrate the stations if they wish. Tape or place the envelopes around the room or activity area so that students can see and reach into them easily.

Procedure:

1. Tell students that they are going to become water molecules moving through the water cycle. Have the students identify the different places water can go within the water cycle, and the state (vapor, liquid or ice) that water molecules would be in at different stages of the cycle. Discuss the conditions that cause the water to move (water movement depends on energy from the sun, electromagnetic energy, and gravity). Students should discuss the form in which water moves from one location to another. Most movement from one station to another will take place when water is in its liquid form. However, any time water moves to the clouds, it is in the form of water vapor, with molecules moving rapidly and apart from each other.
2. Review the various stations water can move through in this particular activity: Clouds, Plants, Animals, Rivers (Black, Great, Primrose and Loantaka Brooks and the Passaic River), Lakes (ponds), Groundwater, Soil, Person, Water Treatment Facility and Great Swamp National Wildlife Refuge. Since there are no glaciers in the Great Swamp they will not be visiting any as part of this activity.
3. Have students line up at the cloud station (the starting place for this activity).
4. Tell students they will be demonstrating water's movement from one location to another. When they move as liquid water, they will move in pairs, representing many water molecules together in a water drop. When they move to the clouds (evaporate), they will separate from their partners and move alone as individual water molecules. When water rains from the clouds (condenses), the students will take a partner and move to the next location.
5. Have the first student in line choose a strip of paper from the envelope. If the strip says that water vapor remains in the cloud, he or she should go to the back of the line and wait their turn to try again. If the strip says to go to another station, the student should latch on to the next person in line (because water in its liquid or frozen state must be made up of at least two molecules) and head for the next station. The next person in line then chooses a strip (each strip should be returned to the envelope before the students move on to the next station) and so on.

6. Students should keep track of their movements. This can be done by having them keep a journal or notepad to record each move they make, including stays. Alternatively, students may record their journeys by leaving behind personalized stickers at each station. Another approach has half the class play the game while the other half watches. Onlookers can be assigned to track the movements of their classmates. In the next round the onlookers will play the game, and the other half of the class can record their movements.

7. Tell students the game will begin and end with the sound of a bell (or buzzer or whistle). Begin the activity!

8. After an appropriate amount of time, signal that the activity is over. Have a few students read over their list of where they traveled as a water molecule. To follow up on the exercise, students might write a creative story about their journey and what it was like to move from one place to another. Or they might discuss how their journey would have differed during another season (e.g., summer versus winter).

9. **Adaptation** - affix red stickers to the Suburbia clues that have been polluted with pesticides, fertilizers and oil to indicate pollution. If a student selects one of these strips, he or she becomes permanently polluted (demonstrating how difficult it is to clean water once it has been polluted). Place a red sticker on those students. If a molecule (student) that has been polluted later joins up with another, unpolluted molecule, that second molecule will also become polluted and should have a red sticker placed on him or her. How many molecules (students) have been polluted by the end of the activity? To follow up, have students research how water becomes polluted and what opportunities exist for it to be cleaned as it moves through the water cycle.