

POUR WATER ALONG A STRING

A. Question: *Can water move along a string?*

B. Materials Needed:

1. Two beakers or plastic cups.
2. A water-absorbent string (thin rope).

C: Procedure:

1. Fill one of the beakers about $\frac{3}{4}$ full with water.
2. Stand a book about 20cm away from the empty beaker.
3. Show students the string and ask: “How can I transfer the water from beaker A to B without moving beaker A over or around the book?”
4. Wet the string thoroughly in the water.
5. Hold one end of the string in beaker A and the other end over beaker B and pour the water slowly along the string.

D: Anticipated Results:

The students should observe water moving along a string and collect this water in a beaker.

E: Thought Questions for Class Discussion:

1. Why was it necessary for the string to be wet?
2. What forces were holding the water to the string?
3. What other material can be used in place of the string?
4. Is it possible to pour other liquids along a string?

F: Explanation:

The string needs to be wet so that the water molecules would adhere to the molecules of the string. The water molecules are attracted to the string molecules by **adhesion**. Once the string is wet, the water can cling to the already present water molecules, because of the **cohesive forces** between like molecules of water. The transfer of water will not succeed with a dry string or any material which is not water absorbent.

Other materials that would have the same properties as the water-absorbent string would do the same job, like: cotton, cloth, paper, wood, etc. Materials that are not water-absorbent, like nylon or wood cannot be used for this purpose.

Liquids that have strong cohesive forces between their molecules, like oil, vinegar, syrup, etc. can be poured along a string as well, provided that we make sure that the string or whatever material is used to transfer the liquid can absorb it.