

9.1 Bending water

Subjects: Bonding, polarity

Description: A stream of water is “bent” upon interaction with a statically charged glass rod.

Materials (on shelf – no bin):

Glass rod

Rabbit fur

Stream of water from faucet in sink (in lecture hall)

Procedure:

Note: It may be helpful to project this demo using a demo camera

1. Charge the rod by rubbing it with the fur
2. Turn on the water faucet
3. Hold the charged rod next to the stream and observe that the stream is attracted to the rod.
4. Try it with a balloon – charge with your own hair or have a student do it (balloons in bin 9.0).

Discussion:

Water is a bent triatomic molecule. Because of the larger electronegativity of oxygen, the O-H bonds are polar, with the H atoms having a partial positive charge and the oxygen atom having a partial negative charge. Electron density accumulates on the oxygen side of the molecule. The partial positive charge of the water is attracted to the build-up of negative charge on the glass rod, “bending” the stream of water towards the rod.

Safety: None

Disposal: None

References:

1. L. Summerlin, C. Borgford, J. Ealy. *Chemical Demonstrations: A Sourcebook for Teachers*; 1987; Volume 2; p. 89