



Hydrology: Teacher Tips & Helpful Hints

N.C.S.S: 8.E.1 Understand the hydrosphere and the impact of humans on local systems and the effects of the hydrosphere on humans.

- The activity is broken up into three different parts:
 - **Part 1: Properties of Water** (8.E.1.1)
 - **Part 2: Water Filtration** (8.E.1.3, 8.E.1.4)
 - **Part 3: Flinkers** (8.E.1.1, 8.E.1.2)

Part 1: Properties of Water

- This activity focuses on cohesion, adhesion, surface tension, and capillary action.
- Students will need vegetable oil for part 1.
- For part 1, students have a penny, pipette, and napkin for each liquid.
- For part 2, the water will crawl until all cups are at an equal level.
- There is a *Properties of Water: Student Activity Sheet* available.

Part 2: Water Filtration

- Students will use the filtered water from part 1 for part 2.
- Demonstrate how to place the filters into the cup.
- Part 3 can be used as a hook for water filtration in the ground.
- Part 4 can be used as a hook for the water treatment process.
- There is a *Water Filtration: Student Activity Sheet* available.

Part 3: Flinkers

- This activity focuses on density.
- Students will need salt.
- Part 1 can also be used to teach buoyancy.
- For part 3 and 4, demonstrate to students how to pour gently down the side of the cup.
- Part 3 can be used as a hook to teach about estuaries.
- Parts 3 and 4 show two concepts, salinity and temperature, that help drive ocean currents.
- An extension for part 4 is to have students place more salt into the ice-cold water. When they do this and then pour gently, they will see that the saltiest, coldest water goes to the bottom, creating three layers in the cup.
- There is a *Flinkers: Student Activity Sheet* available.

N.C.S.S Clarifying Objectives

- 8.E.1.1 Explain the structure of the hydrosphere including:
 - Water distribution on earth
 - Local river basin and water availability

- 8.E.1.2 Summarize evidence that Earth's oceans are a reservoir of nutrients, minerals, dissolved gases, and life forms:
 - Estuaries
 - Marine ecosystems
 - Upwelling
 - Behavior of gases in the marine environment
 - Value and sustainability of marine resources
 - Deep ocean technology and understandings gained
- 8.E.1.3 Predict the safety and potability of water supplies in North Carolina based on physical and biological factors, including:
 - Temperature
 - Dissolved oxygen
 - pH
 - Nitrates and phosphates
 - Turbidity
 - Bio-indicators
- 8.E.1.4 Conclude that the good health of humans requires:
 - Monitoring of the hydrosphere
 - Water quality standards
 - Methods of water treatment
 - Maintaining safe water quality
 - Stewardship