




Investigation 1: Water Observations

Part 1: Looking at Water

1. Pick up and pass out materials.
2. Cut foil, waxed paper, white paper and paper towel into fourths. 
3. Place individual drops of water on the different surfaces.
4.  Observe the drops from all angles and look at the shapes the water makes.
5.  Describe what you see as you make careful observations in your notebook.
6. Clean up area and put materials away.

Additional Challenges:

- ?What happens to the circles of water as more and more drops are added to make big drops?
- ?How close together can you put two drops of water without them touching?
- ?Can a drop of water bounce off another drop of water?
- ?Can you drag a drop of water around with the dropper tip?
- ?What shape are the drops of water as they fall through the air?

Investigation 1: Water Observations

Part 2: Surface Tension

1. Pick up and pass out materials.
2. Working in pairs, place a dry penny on a paper towel. Using a dropper, place drops of plain water on the penny one at a time. Count the number of drops until the water spills. Conduct several trials. Carefully record results in your notebook.



3. Set up as before with a dry penny on a paper towel. Put 15 drops of plain water on a penny. While observing the dome from the side, add one drop of soapy water to the dome. Count the number of additional drops needed to spill the dome. Carefully record results in your notebook.



4. Follow the same procedure to find out how salt affects surface tension. Carefully observe and record observations.



5. Clean up area and put materials away.

Investigation 1: Water Observations

Part 3: Water on a Slope

1. Pick up and pass out materials.
2. Working together in your small group, prop one end of the tray on a book. Hold the other end of the tray so it is level. Make several water domes across the book end of the tray. Lower the other end of the tray. Do two or three races.

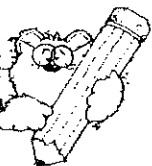


3. Controlled Races

Set up as before except make six water domes increasing in size across the top of the tray. (One drop, two drops, three drops, and so forth) Reflect on the dome-race experience. Carefully record results in your notebook.






4. Increase the slope, by adding one additional book. Describe what happened in your notebook.



5. Clean up area and put materials away.




Investigation 2: Hot Water, Cold Water

Part 1: Temperature

1. Pick up and pass out materials.
2. Push the straw into the black stopper. Fill glass bottle with green water. Push the stopper into the bottle, the green water should rise no more than half way in the straw.
3. Mark the height of the of the green liquid in the straw with a permanent marker.
4.  Place the bottle in a cup filled one-third full of hot water. Observe for three minutes and mark the highest level.
5.  Place the bottle in a cup filled one-third full of ice water. Observe for three minutes and mark the lowest level.
6.  Record observations and report back to the large group.
7. Clean up area and put materials away.

Investigation 2: Hot Water, Cold Water

Part 2: Sinking and Floating Water

1. Pick up and pass out materials.
2. Fill two large plastic cup three-quarters full of clear room-temperature water.
3. Assemble the vials on the sticks and practice lowering the empty vial into the cup.
4.  Teacher fills one vial with hot water (red) and student carefully lowers water into vial and clamps with clothespin. Everyone observes.
5.  Teacher fills other vial with cold, blue water and student carefully lowers water into vial and clamps with clothespin. Everyone observes .
6.  Record observations and report back to the large group.
7. Clean up area and put materials away.

Investigation 2: Hot Water, Cold Water

Part 3: Water As Ice

- 1. Pick up and pass out materials.**
- 2. Dip vials under water to fill them to the brim. Lift them out carefully and place on papertowel. Push the cap on, making sure not to spill any water.**
- 3. Fill syringe. Start with plunger all the way down. Submerge the tip in a cup of water and draw up 50 ml. Point the tip upward and carefully push out any air in the syringe. Direct the syringe back into the water container and push in the plunger until the syringe holds exactly 40 ml.**
- 4. Freeze vials and syringes.**
- 5. Observe frozen containers.**
- 6. Record observations and report back to the large group.**
- 7. Clean up area and put materials away.**

