WATER OLYMPICS

#1 POLE VAULTING: OVER THE TOP!

**Question:** How many pennies do you think you will be able to add to the full glass of water before the water spills?

**Materials:** ☐ clear cup ☐ water to refill the cup ☐ 50 Pennies (count them each time)

**Directions:** Fill a clear cup with water until it is even with the rim of the cup. Add pennies, one at a time. Keep track of the number of pennies added. Continue until the water spills over the side. Repeat this experiment if time permits.

**On your score card:**
- **Predict** the answer to the question above
- **Record your results** on the score card by indicating the number of pennies you were able to add before the water spilled.
- **Draw** the surface of the water on the top of the cup
- **Explain** what might be happening

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WATER OLYMPICS

#2 The Balance Beam: A Penny for Your Thoughts

**Question:** How many drops of water do you think you will be able to put on the penny?

**Materials:** ☐ 2 pennies ☐ 2 Plastic droppers ☐ cup of water

**Directions:** Using a plastic dropper, place as many drops of water on the penny as possible without spilling over the edge. Keep track of the number of drops. Continue until water spills over or the water drop collapses. If time permits let your other team members try too.

**On your score card:**
- **Predict** the answer to the question above
- **Record your results** on the score card by indicating the number of drops you were able to add before the water spilled.
- **Draw** the water on the penny
- **Explain** what might be happening
WATER OLYMPICS

#3 Backstroke: Clipping Along!

**Question:** How many paper clips do you think your team can suspend on the surface of the water?

**Materials:** ☐ Paper clips ☐ Fork ☐ Magnifying Glass ☐ Beaker of water

**Directions:** Try placing a paper clip on the surface of water (Hint: Lay the paper clip on the prongs of a fork and lower it into the water.) If available, use a magnifying glass to observe the surface of the water where it comes in contact with the paper clip.

**On your score card:**
- **Predict** the answer to the question above
- **Record your results** on the score card by indicating the number paperclips
- **Draw** the surface of the water and the paperclip(s)
- **Explain** what might be happening

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WATER OLYMPICS

#4 The Shape of It All!

**Question:** What is the shape of a water drop on various surfaces?

**Materials:** ☐ cup of water ☐ plastic dropper ☐ piece of Parafilm ☐ microscope slide

**Directions:** What do you think the shape of the drop of water will be on these 2 surfaces? Tell your partners. Now put one drop of water on the wax paper or Parafilm and a drop of water on the glass slide.

**On your score card:**
- **Predict** the answer to the question above
- **Record your results** on the score card
- **Draw** the shapes on various surfaces
- **Explain** what might be happening
WATER OLYMPICS

#5 How Slippery is it?

**Question**: Will soap influence the amount of water that can be placed on a penny? How many drops of water do you predict you can place on a penny without soap and on a penny with soap?

**Materials**: ☐ soap  ☐ plastic dropper  ☐ cup of water  ☐ 2 pennies  ☐ paper towel

**Directions**: Carefully clean the surface of the 2 pennies before you begin. Wet your finger and rub it on the soap, then rub one penny with your soapy finger. Make certain the second penny is dry and free of soap film. With the plastic dropper add one drop of water to each penny. Draw what you see. Continue to add drops until the water spills over the surface.

**On your score card**:
- Predict the answer to the question above
- Record your results on the score card by indicating the number of drops for pennies with and without soap
- Draw the pennies with and without soap
- Explain what might be happening

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WATER OLYMPICS

#6 Climbing Water!

**Question**: How fast can water climb up a piece of 2 cm thick paper? Can it carry ink with it?

**Materials**: ☐ 50 ml graduated cylinder  ☐ cup of water  ☐ 2 x 20 cm coffee filter piece  ☐ black or blue EXPO vis-à-vis Marker  ☐ ruler  ☐ tape

**Background**: Water moves to the tops of tall trees due to capillary action combined with root pressure and evaporation from the stomata in the leaves. Water will also climb up paper bring other molecules with it, depending on the mass and charge of the molecules traveling in the water.

**Directions**: Obtain a flat piece of coffee filter paper that your teacher has cut for you and place a dot of ink from the Vis a vis marker 3 cm from the bottom of the strip of paper. Put 5 ml of water in the graduated cylinder. Now carefully lower the strip of paper into the water so the tip of the paper just barely touches the waters surface. Fold the other end of the paper over the top of the graduated cylinder and secure it with tape. Notice the time. Let the water climb the paper in 2-minute intervals and record the distance the water travels.

**On your score card**:
- Predict the answer to the question above
- Record your results on the score card by indicating the distance water climbed and whether or not it could carry ink
- Draw a picture of this event
- Explain what might be happening
**WATER OLYMPICS**  
**#7 Calculating Water Drops!**

**Question:** How many drops will it take to fill 3 ml in the graduated cylinder?

**Materials:** ☐ cup of water ☐ plastic dropper ☐ graduated cylinder

**Background:** When reading a graduated cylinder, be certain to read at the bottom of the meniscus.

**Directions:** Using the plastic dropper carefully count the number of drops needed to fill 3 ml in the graduated cylinder. Be certain to read the bottom of the meniscus. Record your data. Have each member of your team repeat this experiment and determine the average. Now calculate how many drops to fill 1 ml.

**On your score card:**
- **Predict** the answer to the question above
- **Record your results** on the score card by indicating the number of drops
- **Draw** the water in the graduated cylinder
- **Explain** what might be happening

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**WATER OLYMPICS**  
**#8 Oil and Water!**

**Question:** How many shakes does it take to mix oil and water?

**Materials:** ☐ 10 ml of colored water ☐ 10 ml of oil ☐ container with lid

**Directions:** Measure out equal amounts of oil and water, about 10 ml of each. Pour them into a container with a lid, and observe them. Shake the container. Let it rest for a few seconds. Have each member of your team shake the mixture and let it rest. Record your data.

**On your score card:**
- **Predict** the answer to the question above
- **Record your results** on the score card by indicating how well oil and water mix
- **Draw** the mixture after it has rested for a few seconds
- **Explain** what might be happening