

# Tips for Best Results



For the best results, use the test strips by their “Use by” date.



Test ROOM TEMPERATURE water samples only. If testing tap water, use cold tap water and allow the cold water tap to run for about 30 seconds before collecting a sample for testing.



Test in a well lighted area so that you can match the colors more easily. Daylight is best, but not direct sunlight.



Be sure to follow each test procedure, and accurately time the tests that require timing, as described for each different test (e.g. “30 second dip with back and forth motion” or “match color within 10 seconds”).



Record your result on the record sheet as soon as you complete each test and before proceeding to the next test. This gives a permanent record that allows for later reference.



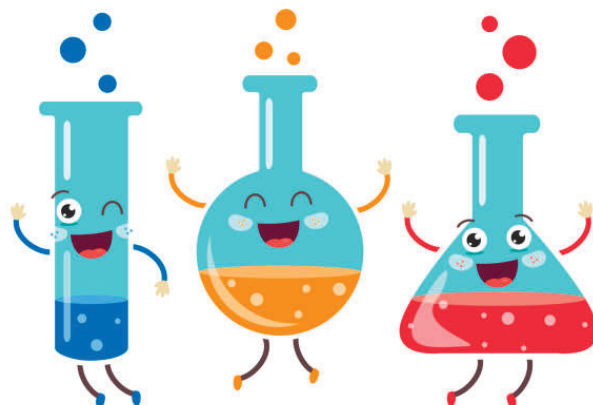
For best results, remove the test strip from the packet just before use. DO NOT touch the test pad. Test strips may discolor or become inactive if exposed to air and light. Be careful to keep the test strip dry until used in the water sample.



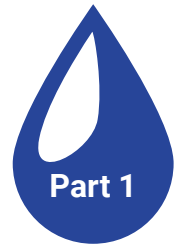
When matching colors for the Total Chlorine, Free Chlorine, Iron, and Copper tests, lay the test strip on a white surface and match colors from the TOP side of the strip, which allows you to see the test pad THROUGH the window. This method of matching gives the most uniform test pad color.



According to the guidelines issued by OSHA 29CFR 1910.1200(d) WaterWorks™ test strips can be considered non-hazardous. Therefore, you can dispose of the used test strips as regular trash. The tested water sample should be discarded down a drain.



# The Water Cycle



The Water Cycle is a continuous process of transformation and circulation of water from one water source to another. This important cycle is driven by two main forces: the Sun (heat energy) and gravity. A major contributor to the water cycle is the ocean because oceans have 97% of Earth's water, and 90% of all water vapor that enters the cycle comes from oceans.

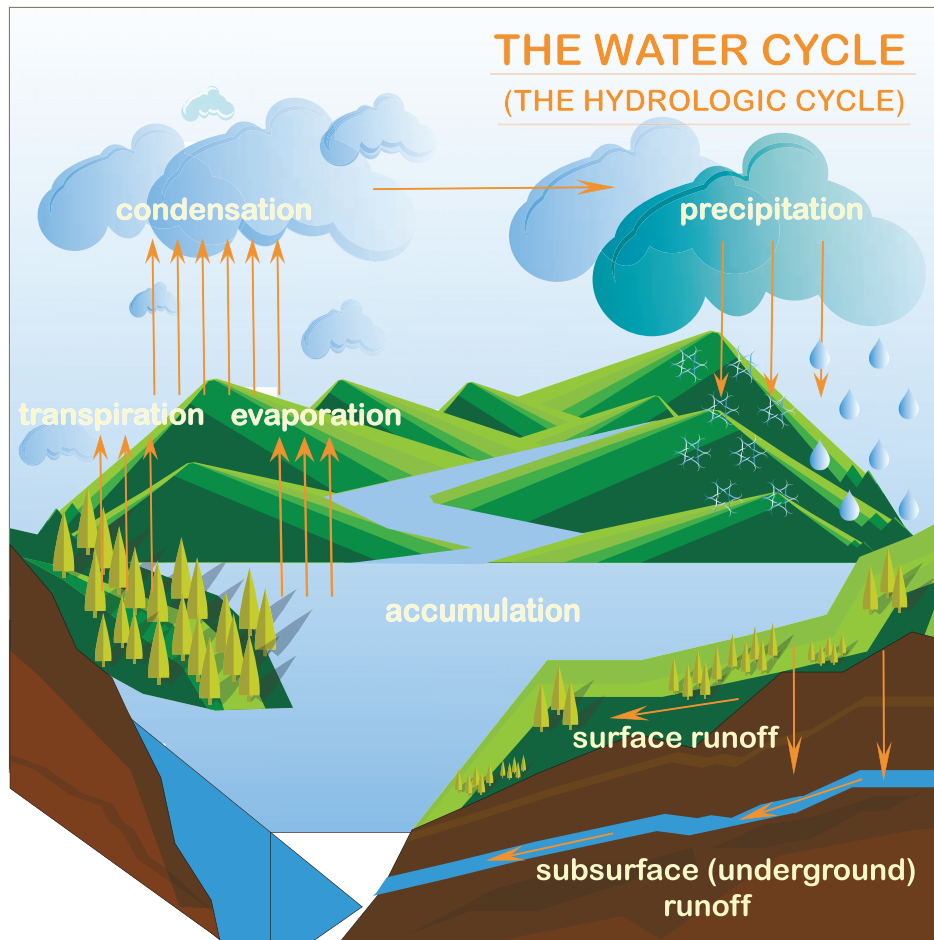
Evaporation acts as the first step of the water cycle for most water on Earth. As the Sun heats up the ocean, the water changes from its liquid state to its gas state, water vapor. It rises into the atmosphere with the flow of air currents, where it begins to condense. Condensation occurs when the water vapor loses heat in the cooler temperature, phases (changes) back into a liquid, and binds together with dust particles to form clouds. As the clouds grow bigger

and become heavy, gravity forces the clouds to precipitate. Precipitation happens as water falls back to Earth's surface as either a liquid or solid such as rain, snow, hail, or sleet. Liquid water will follow the pull of gravity as surface flow – water that travels over the soil to the nearest body of water – or stream flow – water that travels in a body of water.

It can be absorbed into the ground and be absorbed by plants or sink further and becomes groundwater. Solid water can fall as snow, hail, or sleet and melt over time; or accumulate in colder regions, such as mountain tops or glaciers, and freeze in place. There are a bunch paths water can take after landing, but one thing is certain that water will continue to flow and, over time, almost all of it will travel back to the ocean.

**Resource:**

**Introduction to Environmental Science, 2nd Edition** by Caralyn Zehnder, Kalina Manoylov, Samuel Mutiti, Christine Mutiti, Allison VandeVoort, Donna Bennett (Chapter 7 Water, 7.2.2 The Physical State of Water on Earth, 7.4 The Hydrologic Cycle, 7.5.5 Oceans)



Continued...

# The Water Cycle



## OBJECTIVES:

1. Discuss the three main phases of the water cycle
2. Demonstrate the water cycle

## MATERIALS:

Plastic wrap  
 Small stone or coin  
 Large deep dish or bowl  
 Rubber band or tape  
 Small cup  
 Water  
 Soil

## PROCEDURE:

1. Place a small cup inside a larger dish. Make sure the top of the cup is below the top of the dish (figure 1).
2. Leave the cup empty, but place water mixed with soil in the dish.
3. Cover the dish completely with a piece of plastic wrap. You may need to use tape or a rubber band to hold the plastic wrap in place.
4. Carefully place a weight (small stone or coin) on the plastic wrap directly over the small cup. This weight will cause a concave depression to form in the wrap.
5. Carefully place the model in a sunny area and watch it over several days.

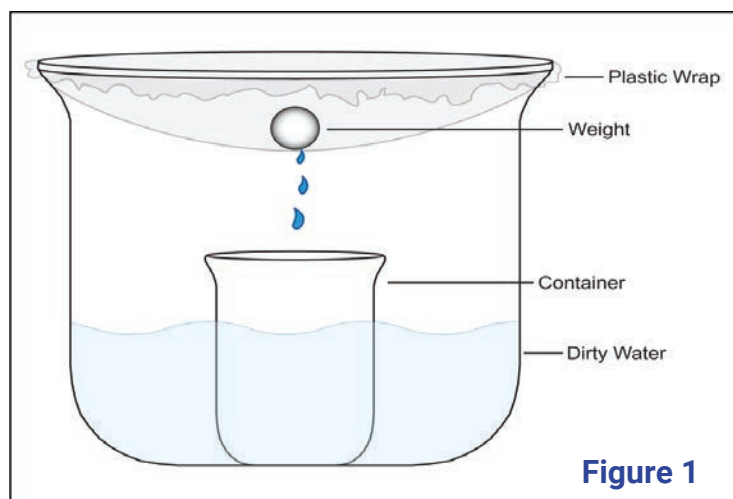


Figure 1

## ANALYSIS AND APPLICATION

1. Describe what happens to the plastic wrap. Does its appearance change? What do you notice about the level of water in the dish?
2. Match the parts of the model to the water cycle – what demonstrates condensation? What demonstrates precipitation? How can you “see” evaporation? Did any water collect in the cup? Is it dirty or clean?

