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Water is life

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San Pablo Creek Photo Wade Barrett

"We forget that the water cycle and the life cycle are one." ~ Jacques Yves Cousteau

Part of the goal at the Orinda Nature Area is to create an opportunity for guests to be in reverence of the gifts of nature. We also want to engage that unique human capacity to understand, and consider the science (derived from the Latin for knowledge, awareness) of nature to only add to our sense of wonder and reverence.

There is no better example of this than water, ubiquitous to the point of boredom and seeming so simple, yet the substance without which life does not exist, which fosters the favorable conditions for that life on our planet, and upon which civilization is largely dependent.

To begin, water is a combination of the two most abundant elements on earth, hydrogen and oxygen, and has the unique property of being a liquid, vapor and solid (ice) within the conditions of the surface of our planet.

Water is essential to the basic chemistry of life, because as a liquid it is the solvent, the basic environment, in which organic compounds can interact in the innumerable processes of metabolism and reproduction that are life. Indeed, life was created as those processes developed from the myriad of reactions that occurred within the primordial water on earth. These processes are not static, water is used in various ways and must be continually replenished in each organism, including us.

Water has yet another role, as the source of the oxygen, via photosynthesis, upon which we totally depend. Water is also responsible for many of the physical processes and conditions within which life conducts itself. As vapor, water forms clouds to later fall as rain and snow, continuously redistributing itself, reshaping the land by erosion and deposition, and transporting minerals and organic material for use by life in new areas. Snow and ice act as reservoirs that extend the benefits of water as they melt.

Water helps stabilize the climate because it can absorb or release an extraordinary amount of heat without changing temperature; as continents heat and cool the oceans and lakes act to keep the global thermometer constant.

Water is also highly unusual because it expands as a solid. This results in faster circulation of minerals because water breaks up rocks when it freezes (and therefore expands) in cracks. It also means ice floats, so actually insulates ponds and lakes during cold periods, preventing lower temperatures that could kill many plants and animals below the surface.

It is no secret that civilization developed along rivers, the Nile, Tigris and Euphrates, Indus, and Yellow, because their water made possible the crops supporting concentrated populations with the attendant benefits of productivity in human affairs. Also important was the role of water in transportation, allowing resources and knowledge to be widely distributed. Later, water was an initial source of power in the early stages of the industrial revolution.

We, as a society, are now realizing that all life on this planet exists as an intricately interconnected web, in which water's numerous roles are threads whose pull we cannot avoid. If we do not sequester dangerous chemicals, water will return them to us to interfere with the functioning of the cells of our bodies. If we divert rivers, the collapse of seemingly distant ecosystems is only the first domino to fall in a series that comes back to us. If we affect the climate, water will no longer circulate in the patterns we depend on, reducing our overall capacity to sustain ourselves.

Knowing the details of water's actions does not diminish its magic. Each time I use water for drinking, cooking, watering plants, filling bird and butterfly baths, I think about how precious each drop is. In fact, I make an active effort to capture rain by placing barrels around my property. I use these containers, as well as my gray water, to hydrate my landscape. I also reserve buckets in each sink to be used for watering plants and rinsing dishes. I am so thankful for this sacred gift. Every day we have a choice to slow down and breathe in the moments we share with the living world around us. Finding a deepened reverence for water can be extremely gratifying and enlightening.

Water saving tips

The East Bay Municipal Utility District has implemented a mandatory 10% water use reduction. Do your part by limiting outdoor watering to three times per week, between the hours of 9 p.m. to 6 a.m., with no runoff. (No irrigation within 48 hours of rainfall.) Don't wash sidewalks and driveways, turn off non-recirculating decorative fountains, and use hose shut-off nozzles when washing cars. Run full loads of laundry and dishes. Turn on the tap only when you need to rinse. Don't let the water run unnecessarily when you brush your teeth, lather up, shave or wash dishes. Take shorter showers. Use dye tabs to find toilet leaks. Leaks are usually caused by worn out flapper valves, easily replaced with a trip to the hardware store. Replace worn out washers in faucets to stop drips and leaks. Install aerators on your bathroom and kitchen faucets.

Source: www.ebmud.com/water/conservation-and-rebates/watersmart-tips

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