SP19371

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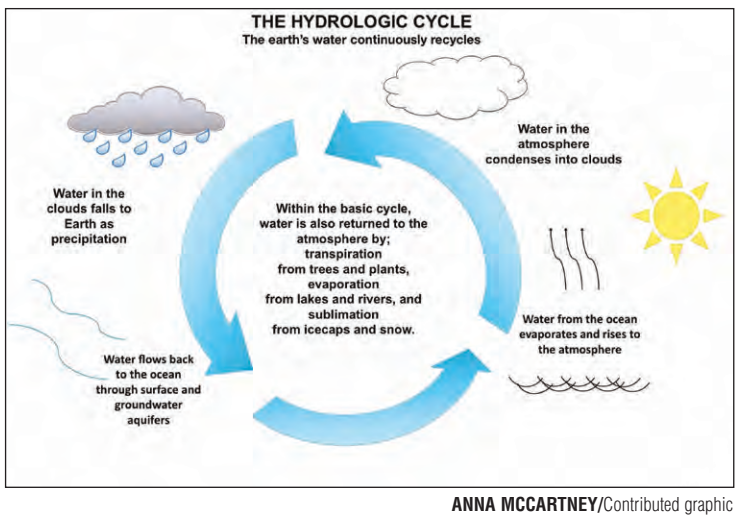
Reconnect with your environment

Learn about environmental issues, their effect on your community and actions for your involvement.



ANNA MCCARTNEY/Contributed graphic

The hydrologic cycle involves the continuous circulation of water in the Earth-atmosphere system. Water from the ocean evaporates and rises to the atmosphere, where it forms clouds. Water in the clouds falls to the Earth as precipitation and flows back to the ocean through surface and groundwater aquifers. Within the basic cycle, water is also returned to the atmosphere by transpiration from trees and plants, evaporation from lakes and rivers and sublimation from icecaps and snow. Learn more about the water cycle and download a watercycle wheel to make with your students at www.srh.noaa.gov/jetstream/atmos/hydro.htm.

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CONTRIBUTED PHOTOS

Students at Harding Elementary participated in the PA Lake Erie ICC by collecting garbage and data around their school and neighborhood.

Harding students learn how to be good stewards

By ANNA MCCARTNEY
Contributing writer

More than 100 Harding Elementary students, led by teacher Erin Sabol, collected 10 bags of recyclables and 23 bags of garbage around their school and neighborhood for the International Coastal Cleanup.

Student comments demonstrate that these students understand the importance of being good environmental stewards.

"I feel the ICC touched everyone that participated and changed how they look at trash." **— Annie Wiesner**

"The ICC makes us realize how much trash could go into our lake and harm birds, fish, and other organisms that live there." **— Emma Easly**

"Once I saw how many storm drains there are, and how much trash could go into them, I realized how much it could harm our lake and the environment." **— Will Sabol**

"The ICC was important because we don't want the Earth to turn into a dump." **— Dante Pullium**

"I liked that we were helping to make the lake less polluted and making it a better place to enjoy." **— Miranda Peterson**

"It's nice knowing that we prevented all that garbage from going into our oceans." **— Kate Cornelsen**

"I liked cleaning up our community and having fun with my friends." **— Zack Barr**

ANNA MCCARTNEY, *a communications and education specialist for Pennsylvania Sea Grant, can be reached by e-mail at axm40@psu.edu.*

NASA

While we recognize the Atlantic, Pacific, Indian, Artic and Southern (Antartic) oceans, they form one continuous oceanic pool that covers 71 percent of planet Earth. All the water in rivers, lakes, groundwater and in the atmosphere is intricately linked to the ocean, so no matter where people live, their activities impact the precious water resources.

Runoff election

Humans damage watersheds by paving over natural areas

By ANNA MCCARTNEY
Contributing writer

The water that makes all life possible today is the same water that kept dinosaurs alive, before man roamed the Earth millions of years ago.

The amount of water has not changed. It has continuously been recycled from the ocean to the air and back to the Earth, changing from a solid to liquid to gas again and again.

It may seem that because 70 percent of the planet is covered with water, the supply is limitless. But of that water, 97 percent is in the oceans. Freshwater makes up only 3 percent, with more than two-thirds of that locked up in glaciers and icecaps. Less than 1 percent of freshwater is available in groundwater, surface water and in the atmosphere.

With the limited supply of available freshwater, protecting this elixir of life is essential. However, a burgeoning human population, mostly in the last 100 years, has been altering the water cycle at an extremely rapid rate.

From 1900 until today, the population grew from 1.65 billion to more than 7 billion. This population explosion is challenging the limited water resources. Competition for accessible water will become even graver 100 years from now. The amount of water will be the same, but the population could reach 10 billion or more by then.

Before solutions to water quantity and quality problems can be realized, it is important to understand how this growth in population has changed the water cycle. A good place to start is by looking at water recycling before and after humans paved over natural areas for homes, roads, parking lots and other buildings.

Before our watersheds were paved, every time it rained, water fell onto the surface of the land. Instead of rushing off, half of the rainfall seeped into the ground and replenished the groundwater, 40 percent went back to the atmosphere through evaporation and transpiration through vegetation and 10 percent was stormwater runoff that went into the streams, rivers and eventually to the ocean.

Replacing the trees, bushes and plants with asphalt, cement, roofs and other impervious surfaces upset this balance of the continuous exchange of water between land, bodies of water and the atmosphere.

In a highly developed watershed, anywhere from 55 to 90 percent of the rain becomes stormwater runoff and only 10 to 40 percent is left to filter into the ground or be evapotranspirated. This increased runoff during high rain events causes more frequent flooding and erosion. And as less water seeps into the ground, the water table drops and reduces groundwater for wetlands, riparian vegetation, wells and other life sustaining uses.

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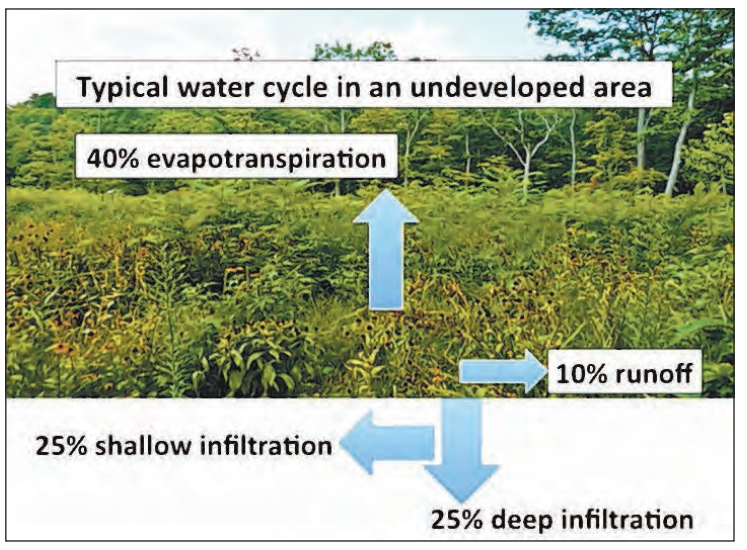
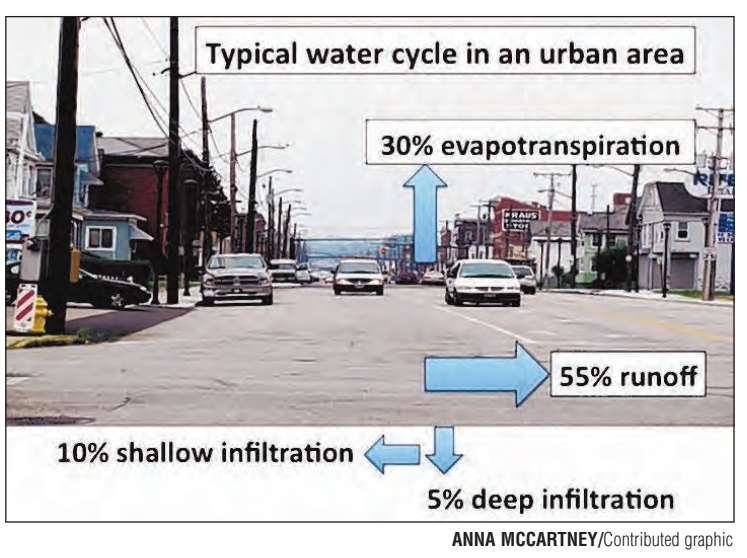


ANNA MCCARTNEY/Contributed graphic

Undeveloped water cycle: 50 percent of precipitation soaks into the ground.



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Urban water cycle: only 15 percent of precipitation soaks into the ground.

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Check out these websites to learn more:

www.srh.noaa.gov/jetstream/atmos/hydro.htm
http://oceanservice.noaa.gov/
http://oceantoday.noaa.gov/
www.paseagrant.org

Imagine you are a reporter covering water issues. What information would you share with readers? Or consider writing a letter to the editor about why people should protect water resources. Support your letter with facts.

Send your writing to axm40@psu.edu for possible publication in the weekly "Your Space" feature.