WATER IS LIFE!

100% GUARANTEED

2017 CONSERVATION WRITING AND JIM CLAYPOOL ART CONTEST | WATER

Sponsored by Kentucky Farm Bureau Federation and Kentucky Association of Conservation Districts

HELPFUL TIPS

As you read this publication and think about how water affects your life, here are some helpful hints to keep in mind as you create your poster or your writing piece:

- Keep entry simple and sincere.
- Be creative and original. Avoid plagiarism by using original words and ideas. Plagiarism is defined as the act of stealing and passing off the words of another as your own without crediting the source.
- Consider an area of water conservation that is important to you, your family and your community.
- Draw from your personal interests or experiences.
- Writing entry should take the form of informational.
- Think about water issues in your community, farm, subdivision or city.
- DO NOT use the "Water is Life" as your only source.
- Interview people in your community about changes in water issues.
- Find ways to improve water in your community. TAKE ACTION!

The Division of Conservation acknowledges and thanks the following organizations and agencies for their support:

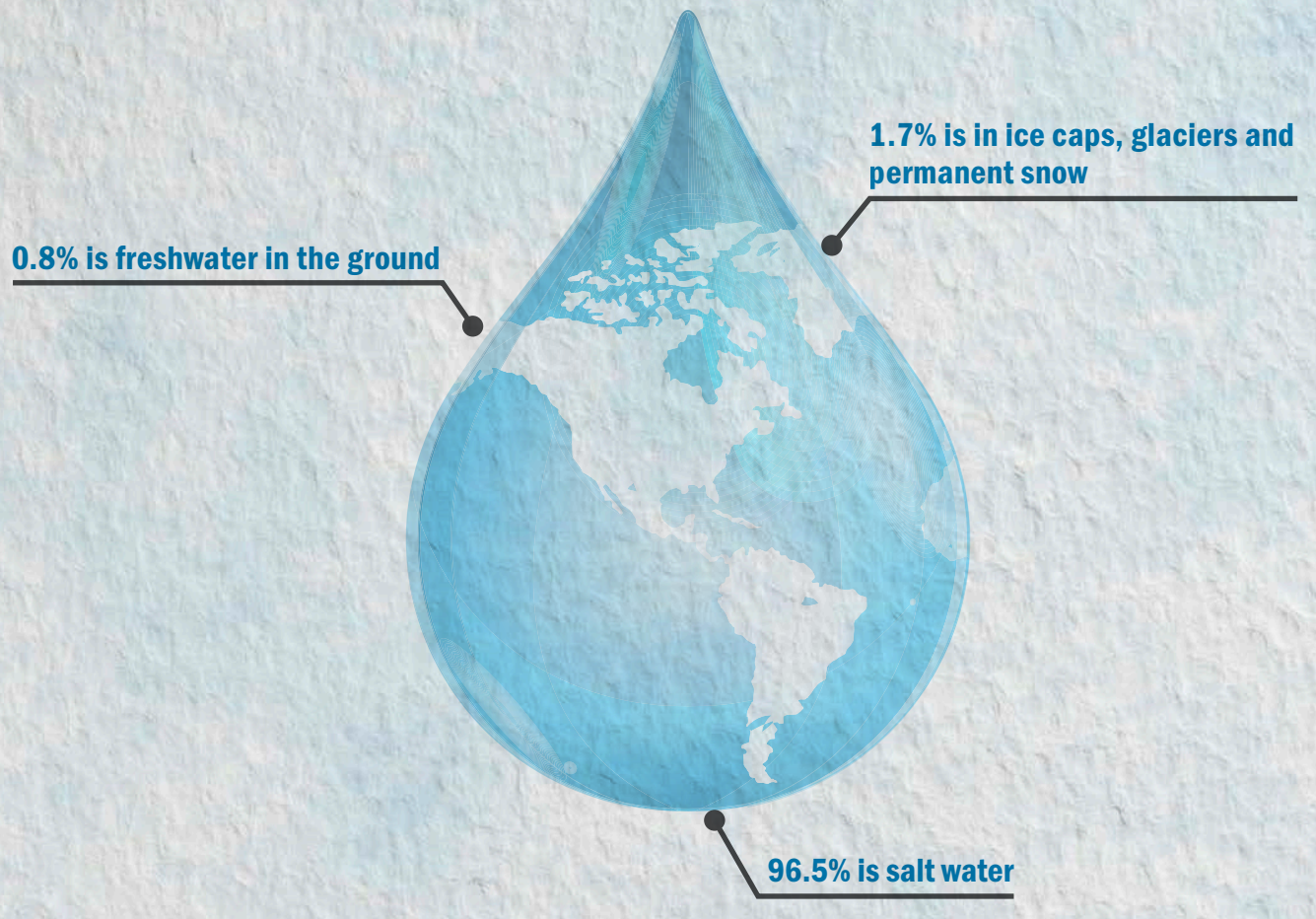
Kentucky Farm Bureau Federation; Kentucky Association of Conservation Districts; Division of Water; Energy and Environment Cabinet; Department of Fish and Wildlife Resources; Division of Forestry; Division of Compliance Assistance; Department of Education; USDA Natural Resources Conservation Service, UK Cooperative Extension Service

WATER IS LIFE

Water is essential to life. When looking for life on other planets the National Aeronautics and Space Administration (NASA) recognized this fact because almost everywhere we find water on Earth, we find life. NASA even used the theme "Follow the Water" when looking for life on other planets. For now Earth is unique because of our water and our abundance of life.

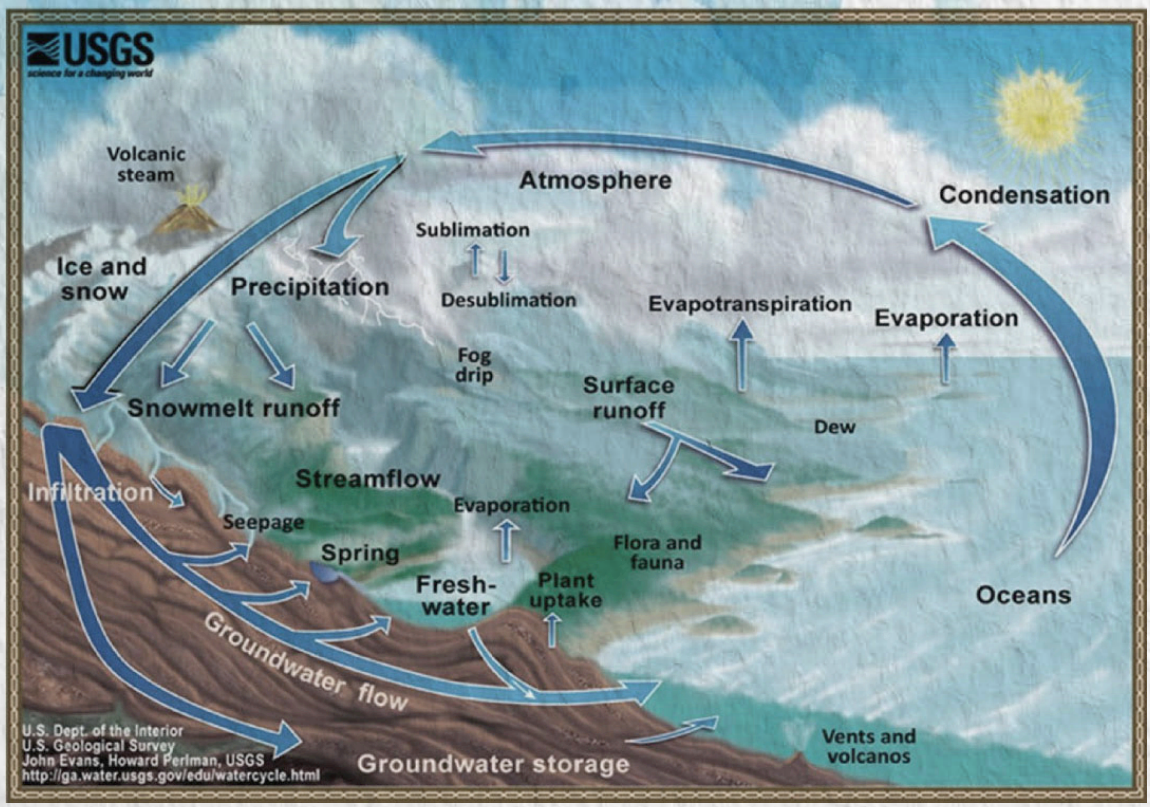
Let's look at how much water is on planet Earth!

https://water.usgs.gov/edu/earthhowmuch.html



Rivers and lakes are only 0.0072% of the world's water supply! Now think about how much your own body is made up of water! It's almost 60%.

THE WATER CYCLE



water.usgs.gov/edu/watercycle

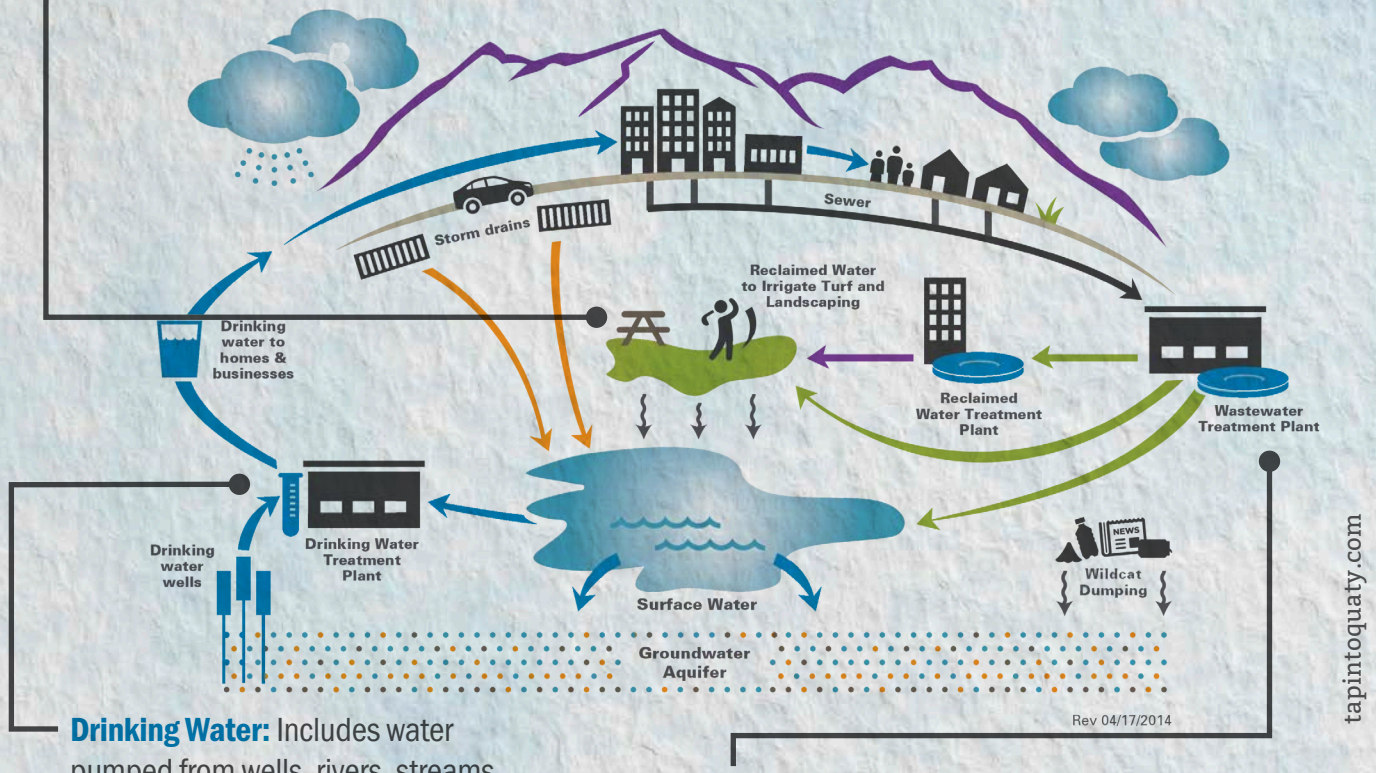
The water on Earth is not new; it has been here since before the time of the dinosaurs. Water is recycled over and over in a system we call the water cycle. In the natural water cycle, water evaporates from oceans, lakes and streams and rises into the atmosphere to form clouds. Another way water can enter the atmosphere is called transpiration, from the breathing of plants. Clouds move across the sky, and eventually the water precipitates, falling out of the air as rain or snow. The water hits the ground and gravity pulls it over the surface of the land (runoff) to the lowest point in the water¬shed, into a stream, lake or deep underground. However, humans can interrupt the natural cycle of water.

The Urban Cycle

In the Urban Water Cycle, we withdraw water from streams or from underground for use in agriculture, energy, businesses and homes. Usually the water is treated, distributed in the community, used by people, treated again and then returned to a nearby waterbody. Why do you think we treat the water before and after we use it? Runoff from the natural water cycle can contain pollution, so anything on the ground can end up in the water as runoff pollution. We also must be careful when we put water back into the environment because we will have to use that water again.

Stormwater Runoff: Generated from rain that flows over land or hard surfaces. The rainwater that runs across the ground (runoff) picks up pollutants as it goes.

Stormwater Careers: Some cities/entities are required to takes steps to control stormwater runoff and employ people to reduce this pollution. Many programs work to educate people about runoff pollution because it's often uncontrolled and a significant contributor to water pollution.



Drinking Water: Includes water pumped from wells, rivers, streams and reservoirs. The water is treated, however pollution can make treatment expensive or even impossible.

Drinking Water Career: Drinking water treatment plant operators treat water so that it is safe to drink.

Wastewater: Includes water that has been adversely affected in quality by human influence. Examples: water used for washing, flushing or in the manufacturing process. If you live in the city, the wastewater that you generate likely goes to a wastewater treatment plant where it is treated before the water is released back into the stream.

Wastewater Career: Wastewater treatment plant operators are responsible for the purification of wastewater.

We All Live In A WATERSHED

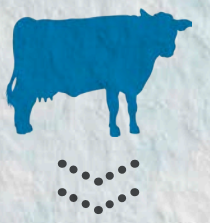
What is a watershed? A watershed is an area of land from which all of the water drains to a common stream, river, or lake. The rainwater that runs across the ground (runoff) picks up pollutants as it goes. Everyone must do their part to reduce and slow down runoff pollution before it gets into the water.

Credit: A. Vicente, U.S. Forest Service

WHERE DOES RUNOFF POLLUTION COME FROM?

Rainwater runs off hard surfaces such as roads, sidewalks and roofs, instead of soaking in, which causes flooding and erosion and carries pollutants like trash, oil, and bacteria.

Homeowners often overuse fertilizers, herbicides, and pesticides, and improperly dispose of yard waste, oil, and chemicals.



Animal waste introduces bacteria to streams.

Trash is not just ugly, it affects the health of the water.

Logging and construction expose dirt, and if not properly managed, this dirt runs off into nearby streams.

Poorly maintained or failing septic systems add to bacteria problems.

Runoff from improperly managed crops introduces fertilizers, herbicides, pesticides, and dirt to streams.

HOW POLLUTION AFFECTS MORE THAN HUMANS

Nationwide, Kentucky ranks among the top 4 states in terms of native freshwater fish diversity.

Hellbenders are the largest salamanders in Kentucky and can grow up to be 24 inches (2 feet) in length.

Source: Kentucky Fish and Wildlife

FLEX YOUR MUSSELS

Freshwater mussels are soft-bodied animals enclosed in a shell. These animals live buried in gravel, sand, or mud at the bottom of lakes, ponds, streams, and rivers. Mussels feed by filtering out bacteria, plankton, etc.

Freshwater mussels are one of the most imperiled groups of animals in North America.

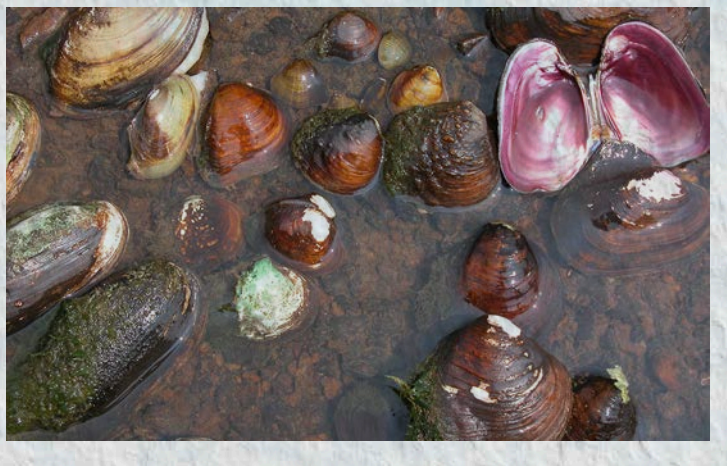
297
species

There are 297 species and subspecies of mussels found in North American.

Of the **103 species** of mussels native in Kentucky, **20** have completely disappeared from the state, and **36** more are considered rare or endangered.

Mussels have a very unique life cycle that relies on fish. Mussels attract fish with a lure and then launch their young into the fish's gills where they grow and eventually detach.

Freshwater mussels serve as an important food source for many aquatic and land animals. Mussels improve water quality by filtering out pollution from our rivers and streams. Mussels also function as environmental indicators of healthy streams. Efforts are underway in Kentucky to repopulate rare and endangered mussels.



Source: Kentucky Fish and Wildlife

KNOW YOUR STREAMS HEALTH

Just like mussels, other aquatic organisms including insects, are indicators of water quality. This is because mussels and many other organisms should be able to live in the environment, but can't survive because of pollution.

Crayfish can tell us about the health of the water although many can handle some pollution.

Dragonflies begin their lives in water and, like crayfish, they can withstand some pollution. If there is too much pollution; the dragonflies cannot survive.

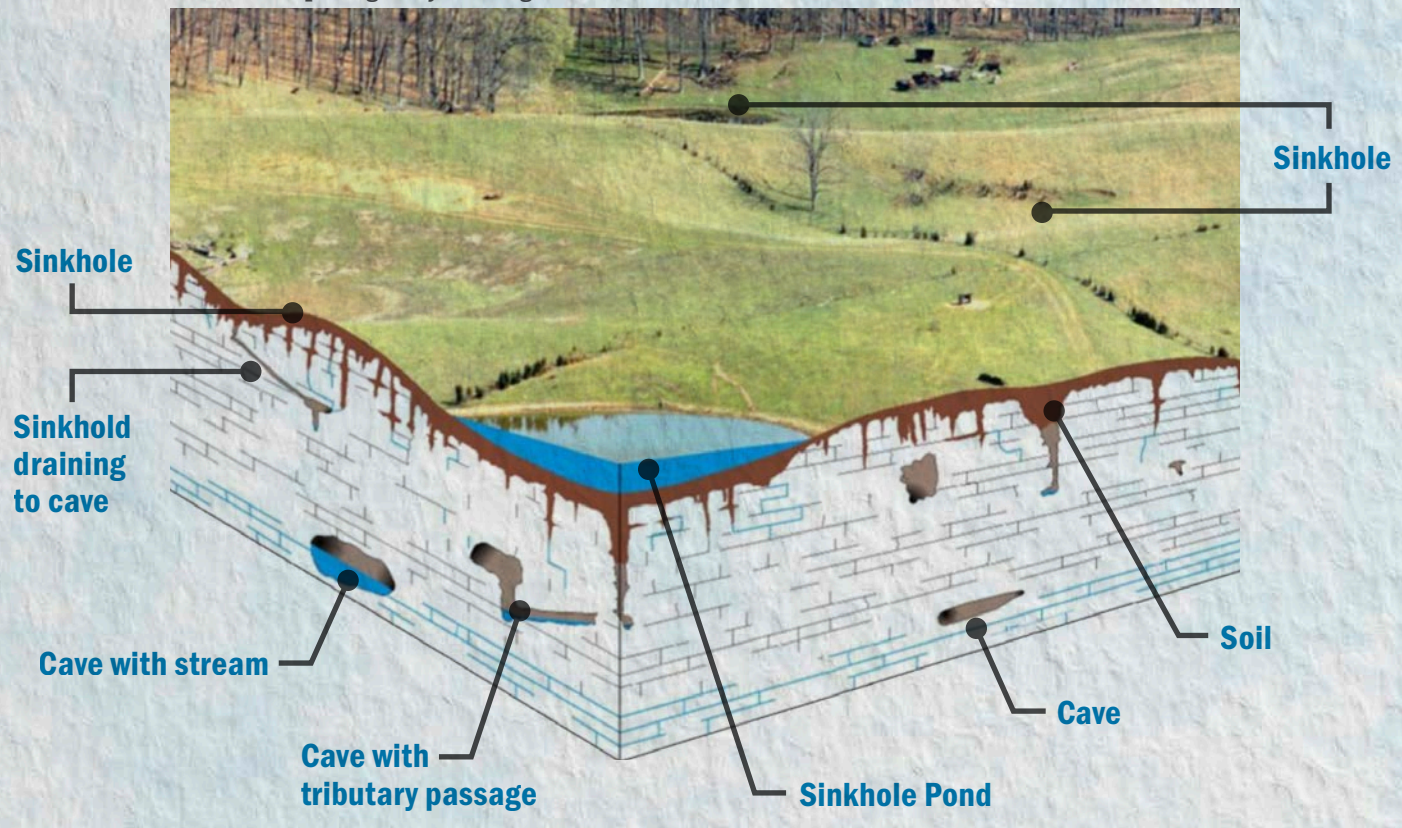
You might not be as familiar with stoneflies as you are dragonflies and they withstand little pollution.

en.wikipedia.org/wiki/Signal_crayfish#/media/File:Pacifastacus_leniusculus_01_by-dpc.jpg
en.wikipedia.org/wiki/File:Sympetrum_flaveolum_-_side_(aka).jpg
commons.wikimedia.org/wiki/File:Aeshna_cyanea_-_larva_(aka).jpg
uky.edu/Ag/CritterFlies/casefile/insects/stoneflies/stonefiles.htm#stonefly

Life UNDERGROUND

Kentucky is one of the most famous karst areas in the world and is home to Mammoth Cave. Where there are caves, there are sinkholes which are direct routes into an underground world and some unique and rare lifeforms.

http://kgs.uky.edu/kgsweb/download/misc/landuse/CLINTON/clintonissues.htm



https://www.nps.gov/maca/learn/nature/fish.htm

Some species are well adapted to life underground. The eyeless cave fish is completely blind. Other species have developed similar characteristics and are under threat from pollution just as many animals are on the surface.

INVASIVE SPECIES ALERT

Aquatic invasive species can be plants or animals that have the ability to thrive and spread aggressively outside its natural range. Invasive species can cause economic harm, as well as significant harm to the environment. Prevention is the best method against invasive species because, once established, they can be costly to control and almost impossible to remove.

Aquatic invasive species can affect the economy and the environment by:

- Displacing and out-competing native species
- Causing taste and odor issues in drinking water
- Disrupting the food webs and decreasing native biodiversity
- Damaging infrastructure, water conveyance structures, and boats

Whether you are an angler, pet store owner or just love being on the water - We can all do our part to help stop the spread of invasive species by adhering to the following guidelines:

- Clean your boat, anchor, and other items that may have been submerged in water.
- Drain water-related equipment before leaving the water.
- DO NOT dump leftover bait!
- DO NOT release fish and aquatic plants into the wild!

To learn more visit http://fw.ky.gov/Fish/Pages/Nuisance-Species-Plans.aspx

ommons.wikimedia.org/wiki/File:Zebra_mussels_dreissena_polymorpha_on_native_mussel.jpg
pixnio.com/flora-plants/hydrilla-verticillata-aquatic-invasive-plant
commons.wikimedia.org/wiki/File:Electrofishing_for_the_asian_carp_invasive_species.jpg

TIME FOR CLEAN WATER

1899 **Rivers and Harbors Act:**
Intended to keep waterways free for navigation. It did keep some waste out of rivers.

1969 **Cuyahoga River Fire:**
The Cuyahoga River in Cleveland was so polluted that it "caught fire".

1972 **Clean Water Act:**
In response to overwhelming water pollution problems congress passed the Clean Water Act (CWA), regarding pollutant discharges into the waters of the United States.

Later, the Kentucky Division of Water (KDOW) was created to manage, protect and enhance the quality of the Commonwealth's water resources for present and future generations through voluntary, regulatory and educational programs.

http://timkovach.com/wp/2014/06/22/burn-big-river/
http://steamboats.com/hobbies/2008race.html

WHAT CAN WE DO NOW?

Trash is pollution we can see.

Despite environmental regulations that protect the quality of streams, lakes, and wetlands, trash often ends up in these waters. Trash can enter the water through stormwater runoff or by illegal dumping. Plastics can be especially hazardous to wildlife if eaten. Plastics also can cause strangulation.

Reduce, Reuse, Recycle and Rebuy

- Bring reusable bags and containers for shopping, traveling, or packing lunches. Choose products that are returnable, reusable, or refillable.
- Start your own compost bin for food scraps and yard waste.
- Shop at second-hand stores.
- Buy items made of recycled content.
- Buy in bulk rather than individual packages.
- Recycle items like glass, aluminum, steel, paper, plastic, and electronics.

How long does it take for trash to decompose?

Apple Core
2 months

Newspaper
6 weeks

Wool Sock
1-5 years

Foamed Plastic Cup
50 years

Plastic Bag
10-20 years

Plastic Bottle
450 years

Rubber Boot Sole
50-80 years

Cigarette Butt
1-5 years

Fishing Line
600 years

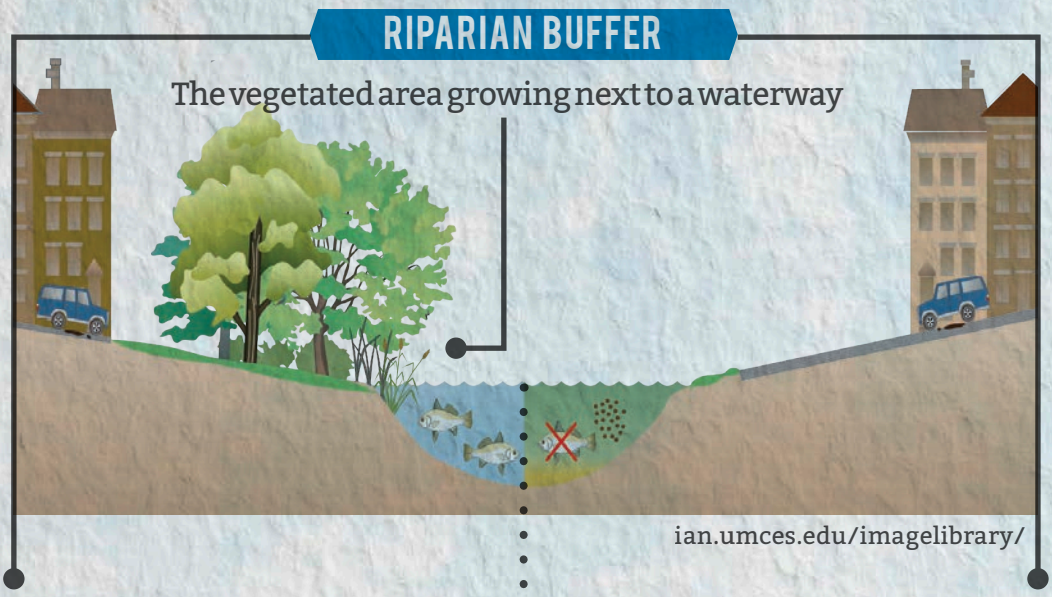
Paper Towel
2-4 weeks

Waxed Milk Carton
3 months

des.nh.gov/organization/divisions/water/wmb/coastal/trash/documents/marine_debris.pdf
nomoretrash.org/content/meet-peanut-turtle-0

PLANT A TREE: SAVE A FISH

It turns out that trees growing along a stream bank provide a variety of critical services to the water next to it. Trees and other native plants act as a sponge, soaking up water and slowing it down, while filtering out nutrients, sediment, and other harmful pollutants that can damage the health of your stream!



Water gets slowed down by Riparian Buffers allowing the water to soak into the soil.

When areas are paved, all the water can run off the land and very little gets to soak into the soil.

Shade trees can keep streams up to 15 degrees cooler than streams without!

When rain runs off the land it picks up pollutants like oil, fertilizers and soil.

The roots of plants in the Riparian Buffers absorb water and hold soil in place, preventing erosion!

Riparian Buffers provide habitat and food for a variety of aquatic organisms.

When water is too warm it holds less oxygen, and many animals can't survive in those conditions.

Riparian plants can filter out pollution from run off. When plants are removed it is carried directly to the stream.

Save EVERY DROP

Turn off the tap! Turning off the tap when you brush your teeth can save 8 gallons of water a day.

Shower Power! Take shorter showers. Baths use more water.

Fix that leak!

Beat the heat! Water plants first thing in the morning.

Who needs a hose? Use a bucket and sponge to wash cars and bikes. Don't leave the hose running, which can waste 6 gallons per minute.

ON THE FARM

Farms are a huge way of life for Kentuckians. Farms in Kentucky provide income for families through the production of meats, fruits, vegetables, timber and goods for consumers. Farms provide places of recreation for fishing, hunting, bird watching, horseback riding, camping and many other leisure activities, and farms provide habitat for Kentucky's abundant wildlife. Plants need water to grow, and animals need water to survive. Clean water is the first building block to provide all of the things we enjoy. All Kentuckians are affected by local farms directly or indirectly, but all of us must play a part in the protection of this irreplaceable resource, and that begins with protecting our water. There are several things that you can do to help keep our water clean.

There are several Best Management Practices (BMPs) that landowners use to protect the Commonwealth's water, and these fall under the passage of the Kentucky Agriculture Water Quality Act in 1994 (KRS. 224.71-100 through 224.71-140) by the Kentucky General Assembly. The goal of the act is to protect surface and groundwater resources from pollution as a result of agriculture and silviculture (forestry) activities. The Agriculture Water Quality Act requires all landowners with 10 or more acres that are being used for agriculture or silviculture operations to develop and implement a water quality plan based upon guidance from the Kentucky Agriculture Water Quality Plan. It is the sole responsibility of each landowner to develop, implement and revise when needed, a water quality plan for their individual operations. These Best Management Practices protect streams, streambanks, shorelines, water habitats and many other water resources. Landowners can install practices such as heavy use areas, stream crossings, stream bank stabilization, riparian area protection, and livestock waterers to ensure that their farming practices do not negatively impact the water.

Learn more about these practices, visit http://conservation.ky.gov/Pages/StateCostShare.aspx.

You can help protect our water by not throwing out trash which can leak chemical compounds into the soil and by not dumping old paint, oil or chemicals on the ground or into the waterways. You can also get involved in your community with roadside trash pick-up (commonly referred to as the Adopt a Highway Program); river or stream clean up days; and drop offs of hazardous chemicals, expired prescription medicine, old tires, or scrap metal so that these items can be properly secured and contained to a non-pollutant environment and keep our water, our town and our body clean of pollutants. Do your part to ensure a clean water Kentucky!

Stream Crossing

Heavy Use Area

Pipeline & Tank

ENVIROTHON

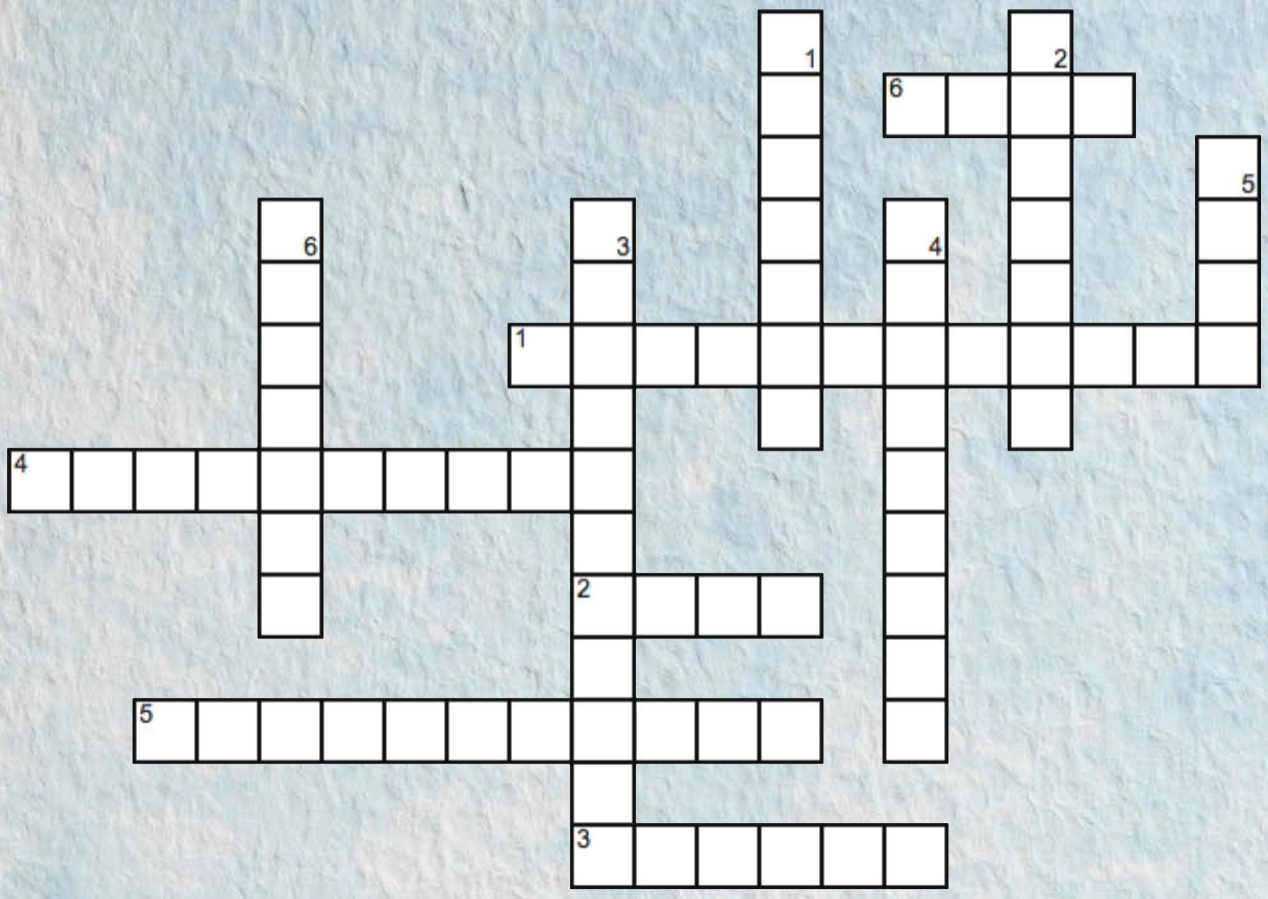
If you really like environmental issues, grab your like-minded friends and form an Envirothon team. The statewide competition allows high school students to team up on a series of hands-on outdoor contests to solve environmental problems and test their knowledge of natural resources.

The event is made up of a team of five high school students competing in five different areas: aquatics, forestry, soils, wildlife and a current issue. At each site, students will use their knowledge to participate in activities to complete a test.

The Kentucky Envirothon consists of two regional competitions. Top scoring teams from each of the regional competitions will move on to the state competition The regional competitions will be held in April of each year, and the state competition is held in May. Next year, the international competition will be held in July at Idaho State University.

For more information, visit http://conservation.ky.gov/Pages/Envirothon.aspx.

WATER CYCLE



ACROSS

1. clouds are an example of this
2. a pipe in the ground that is used to remove water from an aquifer
3. water on the earth's surface which moves into a lake or stream without absorbing into the soil
4. the largest use for groundwater
5. state of the water cycle when water changes from liquid to a vapor
6. the movement of water underground

DOWN

1. layers of soil, sand, and rocks that store groundwater
2. to contaminate, to become unclean
3. water that is found underground in the cracks and spaces in the soil, sand, and rocks
4. groundwater leaves the ground and enters a lake or stream in this area
5. an example of precipitation
6. a long period of dry weather could cause this

ACROSS: 1.) condensation 2.) well 3.) runo 4.) irrigation 5.) evaporation 6.) flow
DOWN: 1.) aquifer 2.) pollute 3.) groundwater 4.) discharge 5.) rain 6.) drought

WATER IS LIFE!

STATE WINNERS: First: $250; Second: $150; Third: $50

REGIONAL WINNERS: $50

COUNTY LEVEL WINNERS: $25

** State/Regional winners will receive a personalized certificate. County winners that win regional or state awards will only receive one check for the top prize.*

RULES

1. Kentucky students grades 6-12 are eligible to compete in the writing contest. Students up to grade 5 may compete in the art contest.
2. A student may not enter both the art contest and the writing contest during the same contest.
3. An entry must be created by one and only one student. Any entry submitted by more than one student will be disqualified.
4. All entries become the property of the contest sponsors. The decisions of the judges at all levels of competition are final.
5. Top three writing entries and/or artworks from your school must be submitted to your local county conservation district by Dec. 1, 2017.
6. ARTWORK: Student entries shall be 8 ½" X 11". Entries may be submitted on any color or thickness of art board (poster board, mat board, etc.) or may be on art paper which is firmly affixed to art board. All artworks must be two-dimensional (2-D). Three-dimensional (3-D) artworks will not be accepted. Artworks may be rendered in any medium: pencil, ink, charcoal, pastel, crayon, paint, photography, etc. Mixed media and collage work is acceptable as long as all pieces are securely glued to the surface of the work. All entries must convey at a glance the theme of the competition to persuade the viewer to take action toward good water conservation practices. All entries must be the original work of the student.
7. WRITING: Entry may not exceed 1,000 words and must be written in ink or typed on one side of paper only. No photographs or artwork may be included with the written work. It is suggested that the written entry take the form of persuasive or informative/explanatory. Students should write from the perspective of an informed writer to a less informed reader and may be in the form of a letter, article, editorial or speech. It should persuade the reader to take action toward good water conservation practices. The work should be from the student author and avoid plagiarism from this source or other sources. Sources should be cited.
8. The entry form below must be completed and secured to the back of your entry.

POINT SYSTEM FOR ART

- 30 points: Composition/Creativity/Craftsmanship *(layout, originality, and quality of work, such as neatness)*
- 20 points: Language/Correctness *(word choice, usage, spelling, punctuation, capitalization)*

POINT SYSTEM FOR WRITING

- 30 points: Purpose/Audience *(establishes and maintains a purpose, communicates with audience, employs a suitable tone)*
- 20 points: Organization *(logical order, coherence, transition organizational signals)*
- 20 points: Idea Development/Support and Evidence of Research *(student's original work shows sources of research)*
- 30 points: Correctness *(spelling, punctuation, capitalization)*, Language *(word choice, usage)*, Sentences *(varied in structure and length, constructed effectively, complete and correct)*

WATER IS LIFE!

Conservation Writing and Jim Claypool Art Contest

Name (Miss, Mr) _____

Parent's Name _____

Home Address _____

City _____ Zip _____

Home Phone ( ) _____

Age _____ Grade _____ Teacher _____

County _____

School _____

School Phone ( ) _____

☐ I hereby certify that I have read the rules and helpful hints and this entry is the original work of:

_____
Student Signature

_____
Parent/Guardian Signature (required)

_____
Teacher or Principal's Signature (required)