



2011 FINAL REPORT



City of Austin
**WATERSHED
PROTECTION**



EARTH CAMP



Earth Camp is a City of Austin Watershed Protection Department (WPD) program. Begun in 1993 to address a comprehensive list of environmental issues, Earth Camp narrowed its focus in 1997 to concentrate on water quality protection.

Earth Camp is a four-day, hands-on field education program for fifth-grade students attending Title I schools in AISD. The primary focus is on Austin watersheds, the Barton Springs Edwards Aquifer and water quality protection. Through guided field trips, students engage in activities about the geography and natural history of Austin's watersheds, water quality, hydrology and geology of our aquifer, green gardening, and other related topics. All content is correlated to the Texas Essential Knowledge and Skills. The students are expected to do homework and work together with their parents and families, as well as each other.

The camp runs during the school year, from September through May. Transportation is provided by AISD and funded by the City of Austin. Participating teachers attend training, teach the Earth Camp classroom curriculum, and manage and assist the students during Earth Camp field investigations. The City of Austin provides the environmental expertise, teacher training, field trips, tours, lessons, and equipment that make Earth Camp a success.

2011 PARTICIPATING SCHOOLS

Students Reached: 597



1)Rodriguez; 2)Wooldridge; 3)Galindo; 4)Walnut; 5)Blazier; 6)Andrews; 7)Govalle; 8)Blackshear; 9)Brooke; 10)Campbell; 11)Langford

*Earth Camp is a City of Austin Watershed program
in partnership with Austin Independent School District.*

Major contributors during the 2011 school year were:

Lady Bird Johnson Wildflower Center

McKinney Falls State Park

Parks and Recreation Department

The Green Classroom



TARGET SCHOOLS



*Austin Independent School District's Title 1 schools.**

ALLAN	DAWSON
ALLISON	GALINDO
ANDREWS	GOVALLE
BARRINGTON	GRAHAM
BECKER	HARRIS
BLACKSHEAR	HART
BLANTON	HOUSTON
BLAZIER	JORDAN
BROOKE	JOSLIN
BROWN	LANGFORD
CAMPBELL	LINDER
COOK	



MCBEE	RIDGETOP
METZ	RODRIGUEZ
NORMAN	ST. ELMO
OAK SPRINGS	SANCHEZ
ODOM	SIMS
ORTEGA	SUNSET VALLEY
OVERTON	TRAVIS HEIGHTS
PALM	WALNUT CREEK
PECAN SPRINGS	WIDEN
PEREZ	WILLIAMS
PICKLE	WINN
PLEASANT HILL	WOOLDRIDGE
REILLY	WOOTEN
	ZAVALA

**Schools that are leading Teacher-Led Earth Camp receive first priority.*



DAILY SCHEDULE



MONDAY

9:30-12:00 **AUSTIN PRESERVE OR PARK**
OBJECTIVE: Students explore a Watershed
ACTIVITY: Scavenger Hunt

12:00-1:00 Lunch and Play

HOMEWORK: MAPPING THE STORM DRAIN AT HOME WITH PARENTS

TUESDAY



9:30-11:45 **MCKINNEY FALLS STATE PARK**
OBJECTIVE: Students assess water quality using the biological method
ACTIVITIES: Macroinvertebrate Test

11:45-12:30 Lunch and Play

12:30-1:00 **INTERPRETIVE TOUR:** Smith Rock Shelter Trail

HOMEWORK: FROG FOLDING ACTIVITY

WEDNESDAY

9:30-11:30 **LADY BIRD JOHNSON WILDFLOWER CENTER**
OBJECTIVE: Students identify recharge features and explain aquifer recharge
ACTIVITIES: 1) Caving
2) Sinkhole

11:30-12:00 Lunch

12:00-1:30 **ZILKER PARK/BARTON SPRINGS**
OBJECTIVE: Students learn about geology, hydrogeology, biology and water quality in the Barton Springs Segment of the Edwards Aquifer
ACTIVITIES: 1) SPLASH! Exhibit
2) Barton Springs Audio Tour

THURSDAY

9:30-12:00 **THE GREEN CLASSROOM**
OBJECTIVE: Students learn about surface and groundwater in Austin and the benefits of natural gardening to water quality
ACTIVITIES: Bouldin Creek Watershed Model, Austin Surface and Groundwater Model, Soak In/Runoff Model, Green Gardening

12:00-1:00 **ZILKER PARK** Lunch and Play

HOMEWORK: COMPOSTING AND GARDEN BUG FUN SHEETS



EVALUATIONS



Test Question	% Pre Test	% Post Test	% Improvement
1. Where does your drinking water come from?	22%	62%	176%
2. A watershed is...	51%	75%	49%
3. What is the name of the watershed where your school is located?	12%	68%	449%
4. Is your school located over the Recharge Zone?	52%	58%	13%
5. Why is it important for water quality to understand a watershed and recharge zone?	43%	66%	54%
6. Where does water go that drains into the stormdrain on your street?	51%	77%	52%
7. The Edwards Aquifer is an underground layer of...?	56%	85%	51%
8. Could oil on your driveway get into the creek water?	69%	89%	30%
9. My own actions can help protect Austin's creeks and river?	78%	89%	14%

Total Rate of Improvement:

54%



Teacher Comments:

"We loved all of the outdoor, hands-on activities, especially the caving and macro invertebrate test. It was such an innovative way of exposing my students to the vocabulary and content knowledge."

"The best experience was the macro invertebrate assessment because there were opportunities to talk about both life and earth sciences."

"Thank you for putting on a great program! The experience was so educational and fun for my kids."



TEACHER-LED EARTH CAMP



Teacher-Led expanded during the 2011 school year to include a second Teacher-Led camp that reached an additional 300 students! Teacher-Led one and two were a complete success!

The Earth Camp Teacher-Led program encourages Earth Camp trained and mentored teachers to lead Earth Camp with the support of the City of Austin. This allows more classes to participate in Earth Camp field trips than could otherwise be reached by City staff. The City pays for transportation, schedules the field trips, provides materials and hires trained teaching assistants to lead part of the class in order to maintain the small group size necessary for hands-on learning in the field.

2011 PARTICIPATING SCHOOLS



Students Reached: 992

1)St. Elmo; 2)Graham; 3)Sims; 4)Brooke; 5)Galindo; 6)Joslin; 7)Walnut; 8)Pecan Springs; 9)Reilly; 10)Zavala; 11)Andrews; 12)Ortega; 13)Ridgetop; 14)Sunset Valley; 15)Rodriguez 16)Allan; 17)Williams; 18)Barrington; 19)Wooten



Teacher Evaluations:

"My students have made many connections from what they learned at Earth Camp to other areas of the curriculum!!! Great relevant and hands-on experience for our students!"

"The Teaching Assistants were extremely helpful and very knowledgeable."

"We all really enjoyed the creek macro investigation. The area was beautiful and there was plenty of evidence of recent flooding. The kids were talking about the evidence on the bus with each other!"

"Thank you so much for giving our students this opportunity!"

AWARDS



- 2006** ***Keep Austin Beautiful Education Award***
Awarded for all the City of Austin's water quality education programs, including Earth Camp.
- 2005** ***Barton Springs/Edwards Aquifer Conservation District Conservation Award***
Awarded for all the City of Austin's water quality education programs, including Earth Camp.
- 2003** ***Texas Nonpoint Source Pollution Report and Management Program***
Highlighted as an exemplary program.
- 2000** ***Austin Independent School District Board of Trustees Recognition***
For prestigious accomplishment that brings enrichment to the educational experience of AISD students.
- 1999** ***Environmental Protection Agency Regional Administrator's Environmental Excellence Award***
For environmental education projects and programs in the southwest (Region 6).
- 1996** ***Environmental Awareness Award***
Presented by the combined commission of the Environmental Board, Solid Waste Advisory Commission and the Resource Management Commission.
- 1995-96** ***Certificate of Recognition for Outstanding Contributions in Environmental Education***
Presented by the Texas Association for Environmental Education presented to Earth Camp Director, Susan Wall.
- 1994** ***Education Outreach Award***
Award recognition given by the EPA.
- 1993** ***Gold Star Award***
Environmental Award from LCRA.



EARTH SCHOOL



Because the City cannot reach every fifth-grader with the Earth Camp field program, an in-school program called Earth School was established in 2003. Earth School provides a one hour classroom presentation that in a very concise, efficient format covers customized information about Austin's watersheds, the Edwards Aquifer and local water pollution issues. The curriculum is correlated with TEKS and enhances the AISD Landforms curriculum unit. It is provided free of charge by the City of Austin to fifth-grade classes in the Austin and Eanes Independent School Districts.

**During the 2010-2011 school year
5,040 fifth graders received
Earth School**

**at the following Austin and Eanes*
Independent School District campuses:**

Allison	Girls School of Austin	Mollie Dawson
Baldwin	Gullet	Oak Hill
Baranoff	Harris	Oak Springs
Barton Hills	Hart	Odom
Becker	Highland Park	Overton
Blanton	Hill	Palm
Boone	Houston	Patton
Brentwood	Jordan	Pease
Bridge Point*	Kiker	Pickle
Bryker Woods	Kocurek	Pillow
Casey	Langford	Pleasant Hill
Casis	Lee	Sanchez
Cedar Creek*	Linder	Summitt
Clayton	Maplewood	T. A. Brown
Cowan	Mathews	Travis Heights
Cunningham	McBee	Valley View*
Davis	Menchaca	Widen
Doss	Metz	Winn
Eanes*	Mills	Zilker



Teacher Evaluations:

"This is a very valuable lesson for the students. I love the hands-on activities. Students are engaged and work together to discover the knowledge. It ties in well with concepts taught in class. The presenter was wonderful. She was thorough, patient, and knowledgeable. The students truly enjoyed the lesson. This is my third year to use the program and I still learn something every time. Thank you!"

"It reviewed and reinforced concepts, while presenting it in a hands-on manner that showed real world relevancy. It was very organized and managed well. Kids LOVED it!"

"I loved all of the interactive activities. The kids were 100% engaged."

"The presentation was nothing short of a well-oiled machine. All schools should have the benefit of this meaningful presentation"

"Ms. Jessica was well prepared and the children were captivated with her presentation. We really appreciated Ms. Jessica's love for our Barton Springs (made our students realize how precious the spring is)!"

"I love this program!"

CONTACTS



City of Austin

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Austin, Texas 78704

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Susan Wall, Earth Camp Coordinator

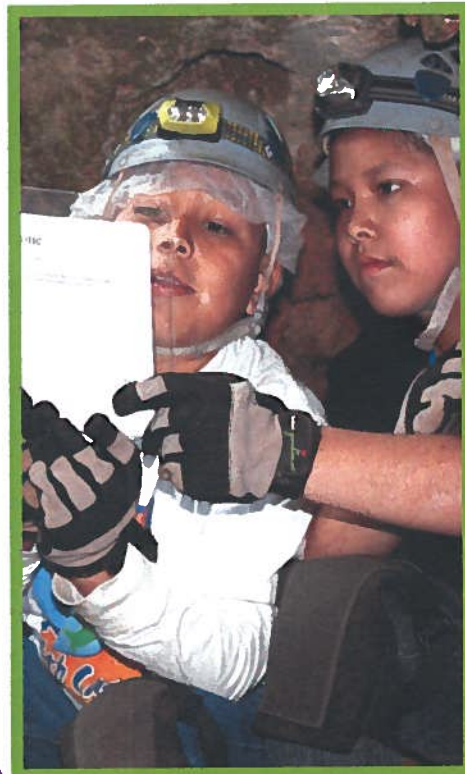
Phone: 974-6571, E-mail: susan.wall@ci.austin.tx.us

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Jessica Gordon, Earth School Coordinator, (2011)

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Yard Care Chemicals

All plants need food, but over-fertilizing or fertilizing before a rain can cause fertilizer to run-off into our creeks and river, causing algae blooms and killing fish. Many people also regularly spray their lawn with pesticides to get rid of animals or plants they don't want in their yard. These chemicals can run off into your local creek, causing harm to aquatic life. They can harm you and your pets too.

Solution

Take Credit!

Visit a plant nursery or home improvement center in Austin and find the Grow Green display. Pick a fact sheet that will help your family.
Name of the nursery _____
Name of the fact sheet _____

2

Native plants do not need yard chemicals or excessive watering. Use the website to pick a native plant you want in your garden.
Plant name _____
www.growgreen.org/pg_pdfs

1

Identify an insect that is good for your lawn or garden using the website <http://www.growgreen.org/beneficial>
Insect name _____

1

Pull weeds from your lawn. Be sure to get the roots.
Date you weeded: _____
Number of weeds you pulled: _____

3

Does your family fertilize the lawn?
If not, you can take credit!

2

If your family does fertilize, ask them to:
(1) use organic fertilizer or compost
(2) never fertilize before a rain and
(3) only use half the amount recommended on the bag, half as often.

2

Total Credits (add up all the points you earned)

Parent Signature _____

Pet Poop

During rainstorms, harmful germs (bacteria and viruses) from animal waste can wash into Austin creeks and the Colorado River. If you are swimming and get some of the water in your mouth, the germs from the pet waste can make you sick. Pet waste also increases algae growth in the creek, which can be harmful to aquatic life.

Solution

Take Credit!

Name of your dog. _____
Scooped the poop, and flushed it in the toilet.
Date _____

1

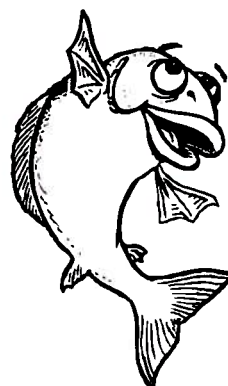
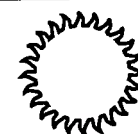
Picked up the poop with a baggy, and tossed it in the trash.
Date _____

1

Found a Scoop the Poop box in a City Park and picked up after walking my dog.
Name of Park _____ Date _____

2

Total Credits (add up all the points you earned)



WOW!

Approximately 30,000 dogs live in the Town Lake watershed. - that means an estimated 1,327 lbs. of dog waste goes into the watershed everyday, or nearly 500,000 lbs. per year!

An average-sized dog dropping produces 3 billion fecal coliform bacteria. Yuck!

Parent Signature _____



Car Care Chemicals

Rainfall that runs off parking lots, driveways and streets picks up spilled oil and takes it into a stormdrain. If you wash your car in the driveway, the soapy water runs off into the street and stormdrain. From there, the water flows directly into the nearest creek.

Solution

Take Credit!

Call 1-800-CLEANUP

to find your nearest used oil collector.

Name: _____
Tell your parents about the nearest used oil collector.



Do you have spilled oil on your driveway at home?

Yes

No

If yes, tell your parents to help you use cat litter or sawdust to absorb the oil. Sweep up the oil soaked litter, seal it in a bag and throw away.
Date you cleaned the oil. _____



Does your parents car leak oil? Tell your parents to fix the oil leak.
Date oil leak fixed. _____



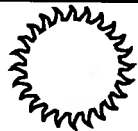
Wash your family's car and divert the soapy water to the lawn where the water and soap are absorbed by the grass.
Date I washed the car: _____



Go with your family to wash the car at a car wash where the water is recycled or sent to the waste treatment plant. Date _____
Car Wash Name _____

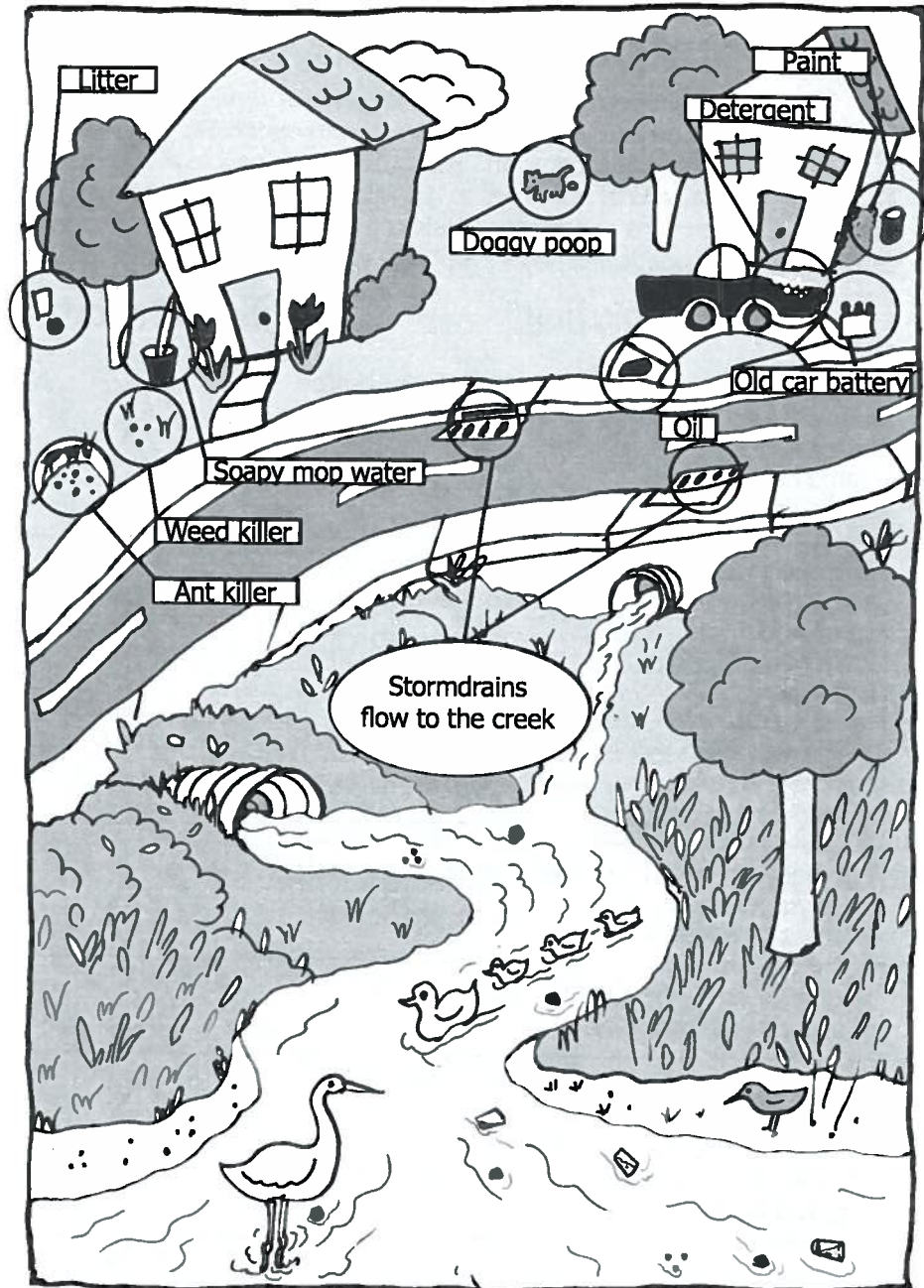


Total Credits (add up all the points you earned)



WOW! One drop of oil can contaminate twenty-five gallons of water, making it unfit for wildlife or humans to drink!

Parent Signature _____



When it rains, runoff can carry pollutants that are on the ground into your creek!

We all live in a watershed!

You live in a home or apartment in Austin, Texas. You also live in a watershed! Living in a watershed means that any water that falls on the ground outside your home will eventually wash down hill into your neighborhood creek, lake or aquifer.



Home Chemicals

Many things we use at home like detergents, glue, paint and batteries have dangerous chemicals in them. They cannot be safely thrown in the trash because they could leak into the groundwater under the landfills. They should never be thrown in the street where they could wash into the stormdrain and nearest creek. Hazardous chemicals kill aquatic life!



Solution

Take Credit!

With an adult, take your family's hazardous waste to the Home Chemical Collection Facility located at 2514 Business Center Dr. (www.cityofaustin.org)
Phone: 974-4343
Date you went: _____
Waste you brought: _____



Buy products that say NON-TOXIC on the label.
Name of non-toxic product you bought. _____



Attach the receipt.

Use rechargeable batteries.
Where are you using rechargeable batteries?
Ipod _____ camera _____
game _____ other _____



Wash the floor for your family. Pour the bucket of wastewater down a drain inside your house. Drains in your house flow to a wastewater treatment plant for cleaning.
Date: _____

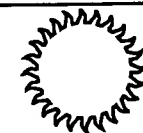


Use natural or less toxic cleaners. For example:

- Mop the floor with Borax. _____
- Clean the windows with vinegar. _____
- Mix one part cooking oil to one part lemon juice and use to polish the furniture _____



Total Credits (add up all the points you earned)



Parent Signature _____





Litter

Litter is trash left on the ground. Rainwater washes all the litter from the watershed into a creek. As a result, the creeks become ugly, stinky and polluted. Litter can add hazardous chemicals such as oil from oil containers into the water or decrease oxygen in the water as it decomposes. It can also look like food, causing animals to eat harmful substances.

Solution

Take Credit!

Throw your non-recyclable trash in the trash can.



Recycle papers, cans and bottles.



Use reusable containers for your food.



If your trash blows away, pick it up and put it in a trash can with a lid.



If you are eating fast food, make sure you throw all the trash in the trash can.



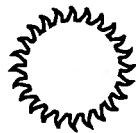
Don't be a litter bug.



Pick up litter in your neighborhood.



Total Credits (add up all the points you earned)



Parent Signature _____

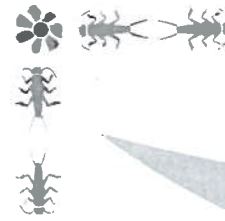
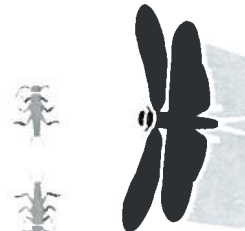


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What should you do? Become A.....



Object of the Game

Practice pollution solutions to help protect water quality in Austin's creeks, lakes and aquifer.

Rules of the Game

1. Individual Goal: Read through all the sections of the booklet.
PICK AT LEAST ONE SOLUTION FOR A POLLUTION AT YOUR HOME.
Do the solution at home with a parent. Have your parent sign the points page and return it to your teacher.
2. Class Goal: Complete one service projects (call 391-0617)
 - Creek Cleanup
 - Stormdrain Marking
 - Plant a Native Landscape

Collect Your Prize!

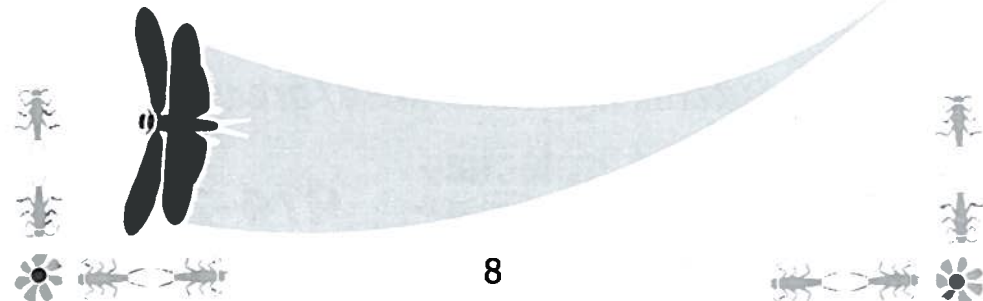
Keep track of your progress on the Clean Creek Class gameboard that will be displayed in your classroom. When your class has reached 60 points and completed a service project, your teacher will send us the gameboard and you will receive a Clean Creek Banner to display in your classroom!

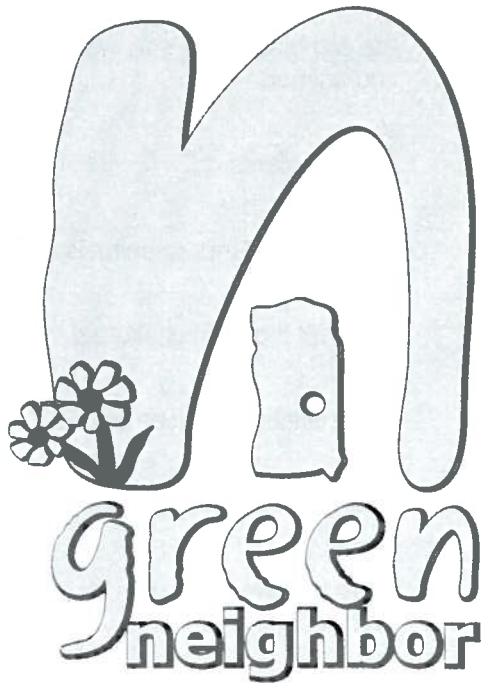


Glossary



Aquifer -	an underground layer of earth, gravel or rock that holds water
Environment -	the combination of soil, water, air, plants and animals
Fertilizer -	food for plants
Organic -	made from plants or animals
Pesticide -	chemical that kills unwanted insects or plants
Polluted -	contaminated, unclean or dirty
Predator -	an animal that lives by eating other animals
Runoff -	water that washes over the land into a creek, river or lake
Watershed -	the area of land that drains water into a particular creek, river or lake





www.cityofaustin.org/watershed/greenneighbor



Watershed Protection
Development Review

974-2550

