

PROTECTING OUR PIPES

What **NOT** to flush



INSIDE:

- 💧 Where does my water come from?
- 💧 The **unflushables**
- 💧 Cooking Oil Recycling Effort
- 💧 The hazards of microplastics



**Hillsborough
County Florida**

Hillsborough County Public Utilities

Hillsborough County Public Utilities provides drinking water and wastewater treatment service to unincorporated Hillsborough County. The department manages four drinking water plants, six wastewater treatment plants, an extensive reclaimed water system and administrative and field support facilities.

The mission of Hillsborough County government is to provide effective quality service at a reasonable cost with courtesy, integrity and accountability in a manner that protects and enhances the quality of life of our diverse population.

For more information about Hillsborough County Public Utilities, visit HCFLGov.net/water, call 813-272-5977 or email HagwoodD@HCFLGov.net.



Newspaper in Education

The Tampa Bay Times Newspaper in Education program (NIE) is a cooperative effort between schools and the Times Publishing Co. to encourage the use of newspapers in print and electronic form as educational resources – a “living textbook.” Our educational resources fall into the category of informational text, a type of nonfiction text. The primary purpose of informational text is to convey information about the natural or social world.

NIE serves educators, students and families by providing schools with class sets of the Pulitzer Prize-winning *Tampa Bay Times* plus award-winning original educational publications, teacher guides, lesson plans, educator workshops and many more resources – all at no cost to schools, teachers or families. In 2017–2018, NIE provided more than 1.5 million print copies and 10 million digital editions of the *Times* to area classrooms free of charge thanks to our generous subscribers and individual, corporate and foundation sponsors. NIE teaching materials cover a variety of subjects and are aligned with the Florida Standards.

For more information about NIE, visit tampabay.com/nie, call 727-893-8138 or email ordernie@tampabay.com. Follow us on Twitter at [Twitter.com/TBTimesNIE](https://twitter.com/TBTimesNIE).

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Credits

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Florida Standards

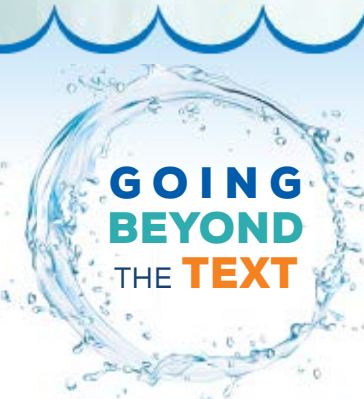
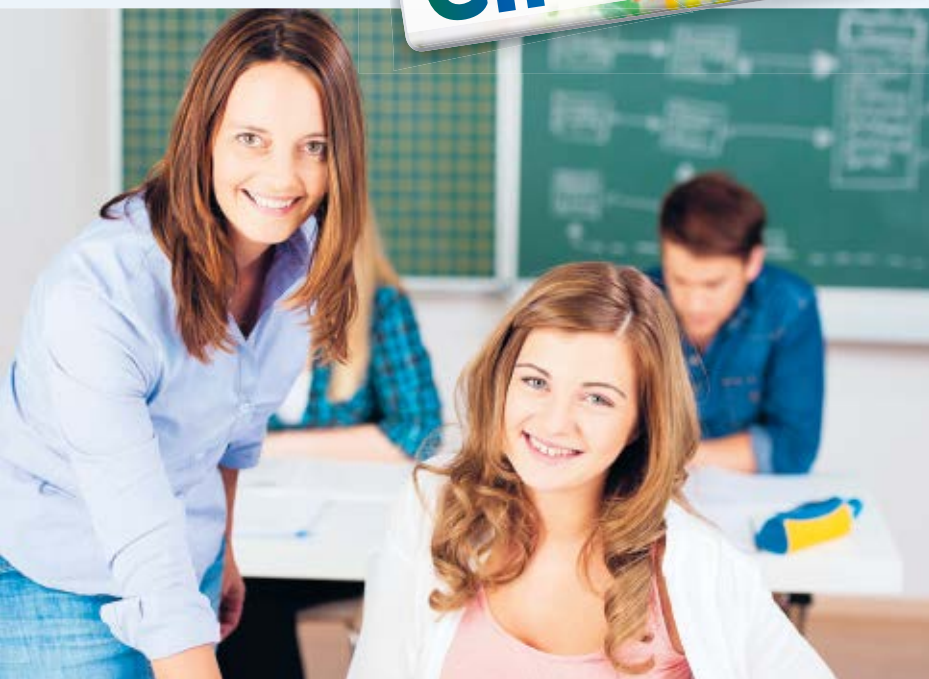
This publication and its activities incorporate the following Florida Standards for middle school students.

Science: SC.68.N.1.1; SC.68.N.1.4; SC.68.N.2.2; SC.68.N.2.3; SC.68.P.11.1; SC.68.CS-CC.1.1; SC.68.CS-CC.1.2; SC.68.CS-CC.1.3; SC.68.CS-CP.3.2; SC.68.CS-PC.3.2; SC.68.CS-PC.3.3; SC.8.N.4.1; SC.8.N.4.2

Language Arts: LAFS.68.L.1.1; LAFS.68.L.1.2; LAFS.68.L.2.3; LAFS.68.L.3.4; LAFS.68.L.3.5; LAFS.68.L.3.6; LAFS.68.RI.1.1; LAFS.68.RI.1.2; LAFS.68.RI.1.3; LAFS.68.RI.2.4; LAFS.68.RI.2.5; LAFS.68.RI.2.6; LAFS.68.RI.3.7; LAFS.68.RI.3.8; LAFS.68.SL.1.2; LAFS.68.SL.1.3; LAFS.68.SL.2.4; LAFS.68.SL.2.5; LAFS.68.SL.2.6; LAFS.68.W.1.1; LAFS.68.W.1.2; LAFS.68.W.1.3; LAFS.68.W.2.4; LAFS.68.W.2.5; LAFS.68.W.2.6; LAFS.68.W.3.7; LAFS.68.W.3.8; LAFS.68.W.3.9; LAFS.68.W.4.10; LAFS.68.RST.1.2; LAFS.68.RST.1.3; LAFS.68.RST.2.4; LAFS.68.RST.3.7; LAFS.68.RST.3.8; LAFS.68.RST.3.9

Educators

Share 100 words about how you used this resource in your classroom for a chance to win a \$15 gift card! Visit tampabay.com/nie for details and to enter.



Look it up

Wastewater treatment facilities remove contaminants from wastewater. What is the definition of “contaminant”? Look up examples of “physical,” “chemical” and “biological” pollutants. Define these words and then find six examples of each – images or words – in the *Tampa Bay Times*.



Water is Life

Water is essential to human life and to Florida's environment and economy. As Florida's population grows, so does our use of water. Understanding Florida's water resources and how to protect and conserve them is vital to our future.

Where does my water come from?

The major source of our water supply in Florida is the Floridan Aquifer. The aquifer is a huge underground reservoir, made up of porous limestone rock, which holds groundwater like a sponge.

The water in the aquifer comes from rainfall that soaks into the ground. Rainfall that is not absorbed is called surface or stormwater runoff.

We take water from the aquifer for human use through springs (natural openings in the ground where water flows directly from the aquifer to the surface) and wells (artificial holes drilled into the aquifer).

What is potable water?

Potable water is water that is safe to drink. In the United States, the Environmental Protection Agency (EPA) sets national

standards for drinking water quality. The EPA requires community water systems to send an annual drinking water quality report to their customers. In Hillsborough County, you can find your water quality report by visiting HCFLGov.net/water and clicking Water Quality.

What is wastewater?

Wastewater is water that has been used in a home or business, including water from sinks, showers, bathtubs, toilets, washing machines and dishwashers. Wastewater also is produced by industries such as agriculture, manufacturing and mining. Wastewater contains pollutants such as human and animal waste, food scraps, oils, soaps and chemicals.

If wastewater is not properly treated, these pollutants can find their way into waterways and the aquifer, which can harm the environment, wildlife and human health.

What is reclaimed water?

Reclaimed water is highly treated wastewater that can be used for agricultural irrigation, industrial processes and the irrigation of lawns, landscapes and golf courses. It also can be pumped into the aquifer to replenish it, a process called groundwater recharge.

Recycling this water protects the public and the environment by reducing the demand for drinking water. The use of reclaimed water:

- Conserves drinking water
- Reduces the need to release wastewater into surface waters
- Reduces consumers' utility bills
- Saves taxpayer money by delaying costly water system expansions



Sources: Crystal Springs Foundation, *Exploring Florida: A Social Studies Resource for Students and Teachers* (fcit.usf.edu/florida), Florida Department of Environmental Protection, Southwest Florida Water Management District, United States Environmental Protection Agency, University of Florida IFAS Extension



Environment editorial

Think about the importance of water to our lives and how water, the aquifer, conservation and pollution relate to the future of mankind and the quality of life. Watch the NBC Learn/National Science Foundation video series "Sustainability: Water" on the Tampa Bay Times Newspaper in Education website:

- Go to tampabay.com/nie.
- On the Resources tab, select Special Reports on the drop-down menu.

- Select "Sustainability: Water" on the Special Reports menu. With your class, make a list of the concepts and ideas you discover. Next, in a small group, look for articles in the *Tampa Bay Times* about water conservation, the environment, pollution or any other topics you discussed with your class. Based on the information you read in these articles and watched in the video, write an editorial on the importance of water in your community and to the future of mankind. Use the editorials and letters to the editor in the *Tampa Bay Times* as models for your article.



**GOING
BEYOND
THE TEXT**

The unflushables: Your toilet is not a trash can!

Never flush:

- ✗ Moist towelettes
- ✗ Baby wipes
- ✗ Cleaning wipes
- ✗ Kitchen paper towels
- ✗ Cloth or disposable diapers
- ✗ Feminine hygiene products
- ✗ Cotton balls, swabs or Q-tips
- ✗ Dental floss
- ✗ Toilet cleaning wand
- ✗ pop-off pads
- ✗ Family planning products
- ✗ Rubber gloves
- ✗ Small toys
- ✗ Plastic bags
- ✗ Clothing
- ✗ Coffee grounds
- ✗ Hair
- ✗ Contact lenses

Only two things should ever be flushed down your toilet: human waste and toilet paper.

Sewers and wastewater treatment systems are designed to handle human biological waste and toilet paper only.

When other items are flushed, they clog pipes and pumps, causing sewage backups, forcing extra maintenance and repairs, destroying expensive equipment and driving up costs to utilities and consumers.

The largest problem facing sewer systems throughout the U.S. is "flushable" wipes. In recent years, baby wipes and cleaning wipes have become common household products. Although companies market these wipes as "flushable" or "sewer safe," wastewater professionals have discovered that they do not dissolve like normal toilet paper. Instead, they stay intact and do not disintegrate in the toilet or sewer system.

When you flush paper or plastic wastes that are not easily dissolvable, these items can get snagged and tangled up in sewer pipes. Eventually, they can block pipes entirely, causing raw sewage to back up into homes and businesses or overflow from manholes onto the street and into our waterways.

Additional problems are caused when wipes and other nonflushable items become entangled in sewer pumps – a process known as "ragging." If not removed, they will eventually destroy the pumps. Deragging pumps and unclogging pipes is labor intensive and significantly increases the cost of maintaining sewer systems.

Even small items can cause big problems. For example, dental floss is not biodegradable, so it also does not dissolve in sewer pipes. Instead, it wraps around other items to create blockages.

Sources: Hillsborough County, Michigan State University Extension, *Washington Post*



The human water cycle

Wastewater treatment is the process of removing contaminants from wastewater. Hillsborough County is doing its part by removing the physical, chemical and biological pollutants and then releasing the effluent for reuse as reclaimed water and into surface water through its wastewater treatment plants. That takes a lot of energy. Kartik Chandran at Columbia University is changing the perception of wastewater by treating it more efficiently and creating energy from resources

- Go to tampabay.com/nie.
- Go to the Resources tab.
- Select Special Reports on the drop-down menu.
- Choose Human Water Cycle and click View Special Report.
- Go to the "Human Water Cycle: Wastewater" video.

Write down all of the important things you have learned about wastewater and wastewater treatment from reading these pages and watching this video. Highlight the information that was new or surprising to you. Next, look through the articles, photos and advertisements in the *Tampa Bay Times*. Do you see articles about or photos of people doing things that could harm our watershed? Do you see items in advertisements that need to be handled carefully? Create a report or blog to share with your class based on what you have learned.

**GOING
BEYOND
THE TEXT**

found in it. Learn what he is doing by watching the video "Human Water Cycle: Wastewater," produced by NBC Learn and the National Science Foundation.

Never down the drain:

Household Hazardous Waste (HHW)

Products that contain ingredients that are toxic, flammable, corrosive or reactive are known as household hazardous waste (HHW). Common examples of HHW include cleaners, solvents, paints, stains, pesticides, herbicides, antifreeze, motor oil, nail polish remover and pool chemicals.

HHW should **never** be put down a household or storm drain or poured out on the ground. Instead, take HHW to one of Hillsborough County's three Household Hazardous Waste Collection Centers for proper disposal.

Visit HCFLGov.net/HHW for more information and to find the HHW Collection Center nearest you.



Flushable? Not!

The largest problem facing sewer systems throughout the U.S. is "flushable" wipes – that aren't. Watch *Consumer Reports* put these wipes to the test:

consumerreports.org/video/view/money/shopping/22783507001/are-flushable-wipes-flushable.



Flushable or not?

Materials that are biodegradable break down into their basic component parts and return to nature. The rates at which materials biodegrade vary. For example, leaves grow in the spring, fall to the ground in the autumn and biodegrade in the winter. By springtime, many of their nutrients have returned to the earth for plants to use during the next year. Most plastics, on the other hand, take

centuries to degrade and return to the state of their basic elements.

Most types of paper biodegrade, but the periods that they need to break down vary widely. Some papers are made to be strong and to last, while others, such as toilet paper, are made to break down very quickly.

In this activity, you will measure the speed with which common paper products break down in the presence of moisture. From these observations, you will be able to make suggestions about materials that should or should not be flushed down the toilet.

Materials needed

- One-quart jars, such as mason jars or empty mayonnaise jars. You will need one jar for each material to be tested.
- Materials to test. Some examples:
 - Single-ply toilet paper
 - Double-ply or super-soft toilet paper
 - Flushable wet wipes
 - Nonflushable baby wipes
 - Facial tissue
 - Newspaper
 - Kitchen paper towels
 - Wax paper
 - Copy paper

Procedure

- 1 Using the article "The unflushables: Your toilet is not a trash can" in this publication, predict what you think will happen to each sample

material. Write your predictions down.

- 2 Fill each jar with tap water and put one type of sample material in each. Label each jar with the name of the material it contains.
 - 3 Shake each jar one or two times to agitate the contents. Take care to shake each jar with the same force and for the same period of time.
- Over a period of two to six weeks, observe, draw and describe the changes in the materials. Create graphs of the changes in the materials over time.
- 4
 - 5 At the end of the observation period, draw conclusions based on your results. Are there any materials that completely dissolved? Are there any that did not appear to change in any way? Based on your observations and knowledge, which materials should be flushed, and which should not be flushed down the toilet, and why? Communicate your results to your class in a PowerPoint or Prezi presentation.
- Now that you have done the investigative work, gathered the research and discussed the facts, it is time to put on your journalism hat and report your findings. Using the articles in the *Tampa Bay Times* as your models, write a special news report about what you have discovered. Enhance your article with a graph, chart or infographic.

Science Standards: SC.68.N.1.1; SC.68.N.1.4; SC.68.N.2.2; SC.68.N.2.3; SC.68.P.11.1; SC.8.N.4.1; SC.8.N.4.2 **Language Arts Standards:** LAFS.68.RI.1.1; LAFS.68.RI.1.2; LAFS.68.RI.1.3; LAFS.68.RI.2.4; LAFS.68.RI.2.5; LAFS.68.RI.2.6; LAFS.68.RI.3.7; LAFS.68.RI.3.8; LAFS.68.SL.1.2; LAFS.68.SL.1.3; LAFS.68.SL.2.4; LAFS.68.SL.2.5; LAFS.68.SL.2.6; LAFS.68.W.1.1; LAFS.68.W.1.2; LAFS.68.W.1.3; LAFS.68.W.2.4; LAFS.68.W.2.5; LAFS.68.W.2.6; LAFS.68.W.3.7; LAFS.68.W.3.8; LAFS.68.W.3.9; LAFS.68.W.4.10

Adapted from: "Science Experiment: Flushable or Not Flushable?" by JEA

Cooking il Recycling Effort

Get to the **CORE** of the matter

Used cooking oil and grease are a serious problem for home plumbing and for Hillsborough County's wastewater collection system.

Cooking oil that's poured down the drain doesn't disappear. It gels and solidifies into thick layers inside drainpipes, sewage pipelines and sewage lift stations, constricting water flow in pipes and causing equipment malfunctions.

The result? Sewage backups, overflows onto streets and foul odors in homes and neighborhoods. It's messy, smelly and costly to clean up.

Sources: Hillsborough County, Florida Industrial Pretreatment Association

Cooking oil **DOs** and **DON'Ts**

- DON'T** put grease or cooking oil down the drain, even if you follow it with hot water or soap.
- DON'T** flush cooking oil and grease down the toilet.
- DON'T** put greasy foods down the garbage disposal.
- DO** scrape leftover food into the trash before washing pots, pans and dishes.
- DO** use a fine-mesh strainer in your sink to prevent debris from going down the drain.
- DO** clean out leftover foods from your sink and dispose of in the trash.
- DO** recycle used cooking oil, fats and grease!

How to recycle your used cooking oil

All cooking oils, including frying oils and bacon and hamburger drippings, can cause problems in home plumbing and the sewage collection system. Here's what to do:

- 1 Carefully pour cooled cooking oil into a large, sturdy plastic or wax-coated container.
- 2 Cap the container and store it in a cool, safe location.
- 3 Don't mix the contents with any other liquids or products.
- 4 Once the container is full, bring it to a Cooking Oil Recycling Effort station or to a Hillsborough County Household Hazardous Waste Collection Center.



CORE knowledge
For more information about Hillsborough County's Cooking Oil Recycling Effort, visit HCFLGov.net/core or call 813-272-5977, ext. 43515.

Request a **CORE** presentation

Hillsborough County Public Utilities offers complementary educational presentations to community groups on the Cooking Oil Recycling Effort (CORE)/Unflushables Program. Visit HCFLGov.net/core and click on Request a CORE presentation to schedule.



In September 2017, a **143-ton "fatberg"** – a solid mass of wipes, diapers, grease and other unflushables – was discovered blocking London's sewer system. It took a crew of eight people three weeks to break the mass up, suction it into tankers and take it for disposal.



Where to recycle your used cooking oil

Used cooking oil is accepted at Hillsborough County's three Household Hazardous Waste Collection Centers.

Sheldon Road Household Hazardous Waste Center

Accepts HHW on the first Saturday monthly, 8 a.m. – 2 p.m.
9805 Sheldon Road, Tampa, FL 33635

South County Solid Waste Facility

Accepts HHW on the second Saturday monthly, 8 a.m. – 2 p.m.
13000 U.S. 41, Gibsonton, FL 33534

Hillsborough Heights Solid Waste Facility

Accepts HHW on the third Saturday monthly, 8 a.m. – 2 p.m.
6209 County Road 579, Seffner, FL 33584

Hillsborough County's HHW Collection Centers are for use by Hillsborough County residential household customers only. Residents must show a valid photo ID.

HHW is accepted only during the days and times listed. Commercial or excessive quantities of waste will not be accepted.

Cooking Oil Recycling Effort stations

You also can recycle your used cooking oil and grease 24 hours a day, seven days a week at freestanding collection stations throughout the county.

Look for the freestanding cabinets with the Cooking Oil Recycling Effort identification.



Cooking Oil Recycling Effort collection station locations

PUBLIC UTILITY SERVICE CENTERS

Northwest Customer Service Center

15610 Premiere Drive, Tampa, FL 33624

South-Central Brandon Support Operations Complex

332 N Falkenburg Road, Tampa, FL 33619

LIBRARIES

78th Street Community Library

7625 Palm River Road, Tampa, FL 33619

Austin Davis Public Library

17808 Wayne Road, Odessa, FL 33556

Bloomington Regional Library

1906 Bloomington Ave., Valrico, FL 33596

Brandon Regional Library

619 Vonderburg Drive, Brandon, FL 33511

Jimmie B. Keel Regional Library

2902 W Bearss Ave., Tampa, FL 33618

Riverview Branch Library

10509 Riverview Drive, Tampa, FL 33578

Seffner-Mango Branch Library

410 N Kingsway Road, Seffner, FL 33584

SouthShore Regional Library

15816 Beth Shields Way, Ruskin, FL 33573

Maureen B. Gauzza Regional Library

11211 Countryway Blvd., Tampa, FL 33626

PARKS AND RECREATION CENTERS

Northlakes Recreation Center

2640 Lakeview Drive, Tampa, FL 33618

Woodlake Park

9207 Woodlake Blvd., Tampa, FL 33615

OTHER COUNTY LOCATIONS

Covington Garden Pump Station

6505 Covington Garden Drive
Tampa, FL 33572

Hillsborough County Environmental Protection Commission

3629 Queen Palm Drive, Tampa, FL 33619

Northwest County Solid Waste Transfer Station

8001 W Linebaugh Ave., Tampa, FL 33625

Town 'N Country Pump Station

5505 Town 'N Country Blvd., Tampa, FL 33615

6th Street Utility Pump Station

1306 Sixth St. SE, Ruskin, FL 33570

Fishhawk Utility Pump Station

15401 Fishhawk Blvd., Lithia, FL 33547

Durant Road Utility Pump Station

5125 Durant Road, Dover, FL 33527

Via Viva Utility Pump Station

980 Via Viva, Brandon, FL 33511

South Regional Service Center

410 30th St. SE, Ruskin, FL 33570

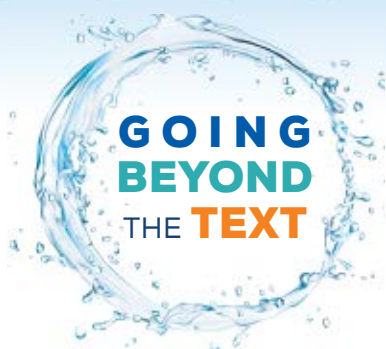
Summerfield Pump Station

13393 Summerfield Blvd., Riverview, FL 33579

Toss it, don't flush it

Around the world, governments are reminding people of the importance of fighting the Fatberg. For example, an Irish public awareness campaign titled "Think Before You Flush" uses a video to help spread the message (thinkbeforeyouflush.org), and the Australian Water Association reminds people that toilets are for the three Ps: pee, poo and paper (toilet paper only). Now it is your turn. Based on what you have learned, you and your

classmates are going to create a three-part campaign. Using the advertisements and advertorials in the *Tampa Bay Times* as models, you will first create a newspaper ad for your awareness campaign. Next, using the "Think Before You Flush" video for inspiration, create a short video ad. Finally, create a 30-second public service announcement that can be viewed on social media. Be sure to tag @HillsboroughFL!



Keep plastic **OUT** of our food chain

- Purchase products that have less plastic packaging
- Choose reusable products instead of single-use products
- Look for products that are packaged in recycled materials
- Recycle plastics whenever possible
- Never flush plastic down the toilet



Hillsborough County Utilities manages **six wastewater treatment plants** that operate **24/7**.



Falkenburg Wastewater Treatment Plant

Hillsborough County has more than **780 pump stations and 5,000 miles of pipes** that serve about **607,000 people**.

The plants treat about **43 million gallons of wastewater** each day.

The plants produce **28 million gallons of reclaimed water** that is delivered to almost **18,000 residential and commercial customers** each day.



Source: Hillsborough County Public Utilities 2017 Annual Consumer Confidence Report

Microplastics – harmful to our environment

Plastic debris that is less than 5 millimeters long (about the size of a sesame seed) is called microplastic.

Microplastics come from a variety of sources, including larger plastic debris that breaks up into smaller pieces and microbeads (very tiny pieces of plastic that are added as exfoliants to health and beauty products).

Microplastics are dangerous to wildlife because they can be mistaken for food and eaten by fish, shellfish and seabirds. Not only is plastic not nutritious, it also can be contaminated with toxins from polluted water. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), plastic debris causes the deaths of more than a million seabirds and more than 100,000 marine mammals every year.

Since plastics are largely nonbiodegradable, microplastic pollution is a long-term environmental problem. Scientists don't know yet what the long-term

impact on human health of plastics in our food chain will be.

As consumers, we can have an impact on how much plastic ends up in our natural environment by buying products that have less plastic packaging; by choosing reusable products instead of single-use plastic bags and bottles; by recycling plastics whenever possible; and by never flushing plastic items down the toilet or drain.

Sources: *Encyclopaedia Britannica*, Environmental Protection Agency; National Ocean Service – National Oceanic and Atmospheric Administration; *New York Times*; TeachEngineering; "Microplastics and human health – an urgent problem," *The Lancet Planetary Health*



Never flush contact lenses

Contact lenses are too small to be filtered out by wastewater treatment facilities, and they do not biodegrade easily. Instead, they fragment into smaller and smaller pieces, adding to the microplastic pollution of our waterways and causing environmental harm.

Never flush used contact lenses down the toilet or wash them down the sink. Always dispose of them in the trash.