



# THE LBC E-TEAM



## STUDENT AND PARENT HANDBOOK FOR GRADES 6-8

In this handbook, you will find:

- Introduction to *The LBC E-Team* program
- Meet Conservin' Mervyn
- Tips on using water wisely
- How to conserve and be safe around natural gas
- Ways to reduce and reuse the trash we make every day



Long Beach Water



# INTRODUCTION



Parents: recently, your child viewed a production of *The LBC E-Team*, a funny, fast-paced educational program about the things we can all do to protect the environment. In fact, the “E” part of *The LBC E-Team* stands for “eco.” “Eco” means ecology, or the environment. We all know how important it is to protect the world around us. Not only for ourselves, but for the plants and animals with which

we share the environment. After all, sustainability is the Long Beach way of life!

Students: in this handbook you will find some great information that will reinforce everything you saw during the performance.

The “LBC” part of *The LBC E-Team* is an abbreviation of the City of Long Beach. Our community prides itself on its awareness of environmental stewardship. Our families have long been at the forefront when it comes to innovative ways to protect the environment. This program extends that innovation to our schools. During the program, your child learned many easy ways to do their part. We hope that you and your child read this handbook as a way to further that learning.

**In this handbook you will find many useful tips on:**

- How to use water wisely**
- How to conserve and be safe around natural gas**
- Ways to reduce, reuse and recycle**

## MEET CONSERVIN' MERVYN

We would like to take this opportunity to introduce you to our conservation mascot, Conservin' Mervyn!

You may already have seen Mervyn at community events around the City of Long Beach. Mervyn is dedicated to raising awareness of the importance of environmental stewardship. If you see Conservin' Mervyn at an event near you, make sure you have your picture taken with him and your younger children. In addition, we hope you capitalize on the excitement your student brought home after they saw *The LBC E-Team* and continue the conversation about how we can all do our part to protect the environment.

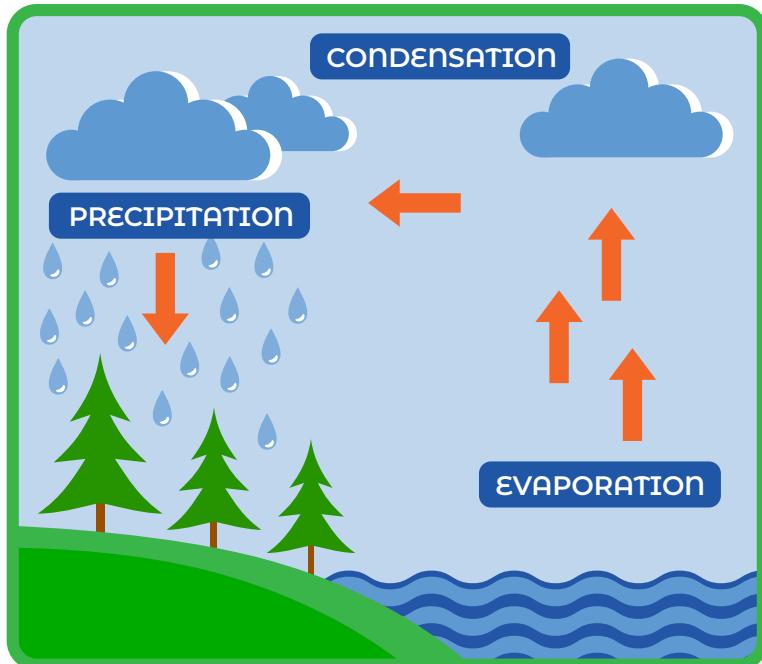


# WATER IS LIFE

Water is everywhere you look as part of the **water cycle**. Water **evaporates** when it heats up and enters the **atmosphere**. In the air, it **condenses** to form clouds. Eventually, when the water condenses enough, it falls, or **precipitates**, back to the Earth. From there, the cycle repeats itself over and over again.

Most of the water on Earth is located in the oceans. This water is **salt water** and cannot be used for drinking or cleaning. Although it is possible to take the salt out of the water through a process called desalination, the procedure can be very expensive as well as energy-intensive.

Water that can be used for drinking and cleaning is called **fresh water** and it is found in lakes, rivers, streams and underground. It can also be found in snow, icebergs and glaciers. Compared to salt water, the amount of fresh water available on Earth is minuscule. It's critical that we all save, or **conserve**, the fresh water we have.



Source: [www.usgs.gov](http://www.usgs.gov)

# BE A WATER HERO!

- Turn off the tap while you brush your teeth in the morning and before bedtime. You can save up to eight gallons of water a day. That adds up to more than 200 gallons a month!
- A leaking toilet could be wasting about 200 gallons of water every day. Try this experiment: place a drop of food coloring in the toilet tank. If the color shows up in the bowl without flushing, you have a leak!
- Do less laundry. Wait until you have enough dirty clothes to run a full load in the washing machine and save as many as 3,400 gallons of water a year.
- Choose water-saving plants with these features:
  - » Succulents with hard, thick stems and leaves
  - » Sage plants with fuzzy leaves
  - » Plants with small leaves like strawberry, groundcover or thyme
  - » Plants with hard, leathery leaves like rosemary
- Take a shower to your favorite song! A one-song shower should last no longer than five minutes.
- Check your savings here:
  - » A typical showerhead uses two gallons per minute. If you take a 10 minute shower, how many gallons will you have used for one shower?
  - » Compare that with a one-song shower (five minutes). How many gallons can you save in a day? How about a year?



# WATER CONSERVATION TIPS

Water efficiency is the smart use of our water resources through water-saving technologies and simple steps we can all take around the house. Using water wisely will help ensure reliable water supplies today and for future generations. Best of all, everyone can play their part in preserving our city's water resources. With the simple steps and informational tools below, you'll find that it's easier than ever.

There are lots of things you can do in your own home to use water wisely and get more from less:

## FIX A LEAK

Small household leaks can add up to gallons of water lost every day. Fix those leaky faucets!

## IN THE BATHROOM

- When waiting for your shower water to heat up, place a bucket in the tub and collect the cold water to use for plants and outdoor landscape.
- Remember to only flush the 3 Ps – pee, poo and toilet paper to prevent blockages!

## IN THE KITCHEN

- Don't let the water run while rinsing your dishes
- Only do full loads of dishes in the dishwasher
- Before you rinse your dishes, scrape fats, oils and grease in the trash. This prevents expensive and inconvenient drain backups.
- Keep a pitcher of drinking water in the refrigerator instead of letting the faucet run until the water is cool
- Thaw food in the refrigerator overnight rather than using a running tap of hot water
- Add food wastes to your compost pile instead of using the garbage disposal



# WATER CONSERVATION TIPS

Did you know that residential outdoor water use across the United States accounts for nearly 9 billion gallons of water each day, mainly for landscape irrigation? The average U.S. household uses more water outdoors than for showering and washing clothes combined. The following tips can help you use water wisely outdoors.

## LANDSCAPING

- The Long Beach Water Department may offer Long Beach residents an incentive to replace turf with water-wise plants. Visit [lblawntogarden.com](http://lblawntogarden.com) to find out more.
- If you're a Long Beach resident, make sure to follow the designated landscape watering days and times to water
- Plant turfgrass only where it has a practical function, such as a play area
- If you have an in-ground sprinkler system, make sure it is functioning well
- Turn irrigation off when it rains and let Mother Nature do the work to water your landscape



## OTHER OUTDOOR WATER USES



- Wash your car with a hose that has a water shut-off nozzle attached
- Use a broom to clean sidewalks and driveways
- Cover pools and spas when not in use to prevent water loss from evaporation

*Visit [liveh2olb.com](http://liveh2olb.com) to find out more water-saving tips!*

# WHAT IS NATURAL GAS?

**Natural gas** is a fossil energy source that formed deep beneath the Earth's surface. Natural gas contains many different compounds. The largest component of natural gas is methane, a compound with one carbon atom and four hydrogen atoms (CH<sub>4</sub>). Natural gas also contains smaller amounts of natural gas liquids (NGL, which are also known as hydrocarbon gas liquids) and nonhydrocarbon gases, such as carbon dioxide and water vapor. We use natural gas as a **fuel** and to make materials and chemicals.

## HOW DID NATURAL GAS FORM?

Millions of years ago and over long periods of time, the **remains of plants and animals** built up in thick layers on the Earth's surface and ocean floors, sometimes mixed with sand, silt and calcium carbonate. Over time, these layers were buried under sand, silt and rock. **Pressure and heat** changed some of this carbon and hydrogen-rich material into coal, some into oil (petroleum) and some into natural gas.



## WHERE IS NATURAL GAS FOUND?

In some places, natural gas moved into large cracks and spaces between layers of overlying rock. The natural gas found in these types of formations is sometimes called **conventional natural gas**. In other places, natural gas occurs in the tiny pores (spaces) within some formations of shale, sandstone and other types of sedimentary rock. This natural gas is referred to as shale gas or tight gas, and it is sometimes called **unconventional natural gas**. Natural gas also occurs within deposits of crude oil, and this natural gas is called **associated natural gas**. A type of natural gas found in coal deposits is called coalbed methane. Natural gas deposits are found on land and some are found offshore and deep under the **ocean floor**.

## HOW NATURAL GAS IS USED IN THE UNITED STATES



The **electric power sector** uses natural gas to generate electricity. Most of the electricity produced by the electric power sector is sold to and used by the other consuming sectors.



The **industrial sector** uses natural gas as a fuel for process heating, in combined heat and power systems, and as a raw material to produce chemicals, fertilizer and hydrogen.



The **residential sector** uses natural gas for heating, drying and cooking. About half of the homes in the United States use natural gas for these purposes.



The **commercial sector** uses natural gas to heat buildings and water, to operate refrigeration and cooling equipment, to cook, to dry clothes and to provide outdoor lighting.



The **transportation sector** uses natural gas as a fuel to operate compressors that move natural gas through pipelines and as a vehicle fuel. Nearly all vehicles that use natural gas as a fuel are in government and private vehicle fleets.

## WHERE NATURAL GAS IS USED

Natural gas is used throughout the United States, but five states accounted for about 38% of total U.S. natural gas consumption in 2019.

The five largest natural gas consuming states in 2019 were:

- Texas — **14.9%**
- California — **6.9%**
- Louisiana — **6.0%**
- Pennsylvania — **5.2%**
- Florida — **5.0%**

# NATURAL GAS CONSERVATION TIPS

## WAYS TO CONSERVE NATURAL GAS

- During winter months, you can take advantage of sunlight by opening your curtains during the day to allow the sun to naturally heat your home. During warmer months, use light-colored window shades or blinds to reflect heat back outside, keeping your home cooler and more efficient.
- When replacing appliances or purchasing electronics, look for ENERGY STAR® appliances, fans and electronics. Your home's appliances and electronics account for close to 20% of your energy bills.
- Reduce energy for water heating. Water heating is a large energy expense in your home, accounting for about 14-18% of your utility bills. By taking low-cost steps, you can reduce your water heating bills. Make sure your water heater is set to no higher than 120°F.
- Install and set a programmable thermostat. You could save an estimated 10% per year on heating and cooling costs by using a programmable thermostat.
- Newer water heaters have more insulation than older ones. If your water heater is more than five years old, you should wrap a water heater jacket around it to stop heat loss from the tank.
- A professional energy audit gives you a thorough picture of where your home is losing energy and what you can do to save money. By making upgrades (especially sealing air leaks and properly insulating your home), you can expect to save 15-30% or more in energy costs.



# NATURAL GAS SAFETY TIPS

## WHY DOES NATURAL GAS SMELL LIKE ROTTEN EGGS?

Have you ever noticed that natural gas smells like **rotten eggs**? The rotten egg smell that you sense is actually added to the natural gas. Normally, natural gas is odorless and colorless; you can't see it and you can't smell it. The added smell is a compound called **mercaptan** and it smells like rotten eggs!



If you smell something similar to rotten eggs and think you may have a natural gas leak, don't hesitate. **Get out of the house** immediately and **call 911**. Don't call from inside the house because a spark from the phone could set off the gas. The same is true for turning off the light switch, so leave those lights on.

## NATURAL GAS SAFETY TIPS

Natural gas lines that run to your house are buried underground, very close to the surface, so before you do any digging, including gardening, **call 811**. They will notify all utilities who will then send a representative to mark where your underground natural gas lines are. There is no charge for this service.

Keep in mind that **pilot lights** and main burners on gas appliances should always produce a **blue flame**. If the flame is yellow or red, call for service as soon as possible.



If your pilot light is **substantially higher** than normal, this may be an indication of **excessive pressure**, in which case you should also call your **utility company**.

*To find out more, visit  
[www.longbeach.gov/energyresources](http://www.longbeach.gov/energyresources)*

# WHAT IS WASTE?

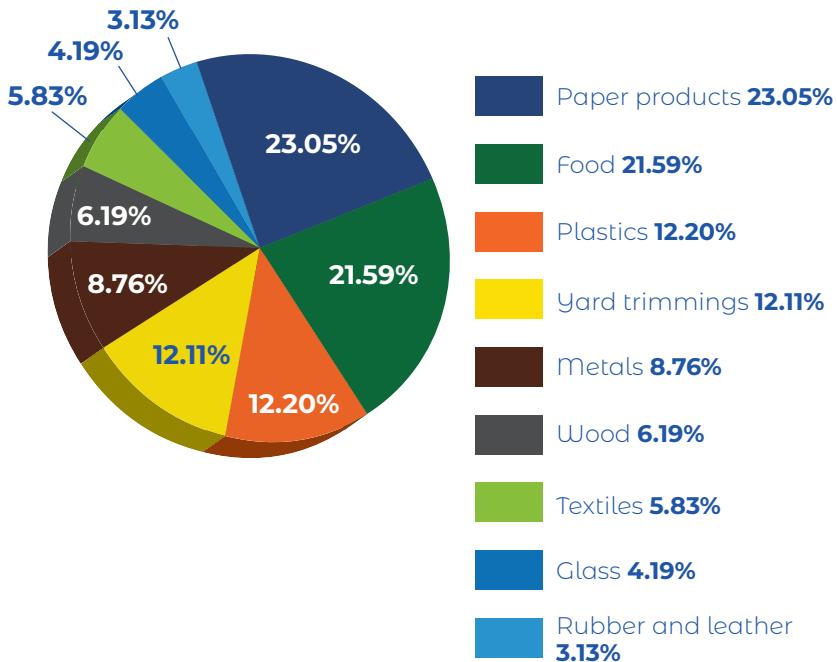
**Municipal solid waste** (MSW) — more commonly known as trash or garbage — consists of everyday items we use and then throw away, such as product packaging, grass clippings, furniture, clothing, bottles, food scraps, newspapers, appliances, paint and batteries. This comes from our homes, schools, hospitals and businesses.

## HOW MUCH WASTE?

In 2018 (the most recent year the data was tracked), Americans generated about **292.4 million tons** of trash and **recycled and composted** about 94 million tons of this material, equivalent to a 32.1% recycling rate. On average, we recycled and composted 1.58 pounds of our individual waste generation, which amounted to **4.9 pounds per person per day**.

Of all the municipal solid waste created in the U.S. in 2018, the major components were:

## MUNICIPAL SOLID WASTE IN THE U.S.



Source: [www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-materials](http://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-materials)

# WHAT IS HAZARDOUS WASTE?

Simply defined, hazardous waste is waste material with properties that make it dangerous or capable of having a harmful effect on human health or the environment. Hazardous waste is generated from many sources, ranging from industrial manufacturing process wastes to batteries, and may come in many forms, including liquids, solids, gases and sludges.

## HAZARDOUS WASTE RECYCLING, TREATMENT, STORAGE AND DISPOSAL

Many **hazardous wastes** can be **recycled** safely and effectively, while other wastes will be treated and disposed of in landfills or incinerators.

Recycling hazardous waste has a variety of benefits, including reducing the consumption of raw materials and the volume of waste materials that must be treated and disposed. However, improper **storage** of those materials might cause spills, leaks, fires and contamination of soil and drinking water. Many hazardous wastes are stored in **waste management facilities**.

## WHAT IS A HAZARDOUS WASTE MANAGEMENT FACILITY?

Hazardous waste management facilities receive hazardous wastes for treatment, storage or disposal. These facilities are described in more detail below:

**Treatment** — Using various processes, such as incineration, to alter the character or composition of hazardous wastes. Some treatment processes enable waste to be recovered and reused, while other treatment processes dramatically reduce the amount of hazardous waste.

**Storage** — Temporarily holding hazardous wastes until they are treated or disposed.

**Disposal** — The City of Long Beach offers **FREE** household hazardous waste collection events on the 2nd and 4th Saturday of each month from 9am-2pm at EDCO Recycling and Transfer Collection Center, 2755 California Avenue in Signal Hill, CA.

# WASTE REDUCTION TIPS

The best places to start making a difference are right in your own home and at school. The tips below will help you get started.

## AT SCHOOL

- Get a list of supplies from your teacher and go through last year's school supplies before purchasing new items.
- Purchase and use school supplies made from recycled products.
- Reduce the amount of waste you make by using school supplies wrapped in minimal packaging and buying in bulk when possible.
- Save packaging, colored paper, egg cartons and other items to reuse for arts and crafts projects.
- Maintain new school supplies. Keep track of pens and pencils.
- If you bring your lunch to school, package it in reusable containers instead of disposable ones.
- When buying lunch, grab only what you need. Too often, extra ketchup packets and napkins go to waste.
- Recycle your empty cans and bottles. Keep the lids on and place them in the purple recycling carts found throughout your community.
- Work with your teachers to set up a composting program at school.
- Make posters that remind students what can be composted or recycled.



## AT HOME

- Use food scraps, yard trimmings and other organic wastes to create a compost pile. Adding the compost to soil increases water retention, decreases erosion and keeps organic materials out of landfills.
- Raise the cutting height of your lawnmower during hot summer months to keep grass roots shaded and cooler, reducing weed growth, browning and the need for watering.
- Leave grass clippings on your lawn instead of bagging them. The clippings will return nutrients to the soil instead of taking up space in landfills.
- If you have a wood burning fireplace, save your ashes instead of throwing them away. Once cooled, wood ashes can be mixed into your compost heap and provide nutrients to your garden.



- Recycling is important. Use the purple recycling cart at your house or at your school. Keep in mind that only certain things can go in those purple carts. Newspapers, cardboard, aluminum cans and glass bottles are all recyclable. To find out more, including information on free

compost workshops, visit [www.longbeach.gov/lbrecycles](http://www.longbeach.gov/lbrecycles).

# INTERNSHIPS AND OTHER EDUCATIONAL OPPORTUNITIES

Now that you've seen *The LBC E-Team*, you may want to explore other opportunities to apply what you learned! Long Beach Utility providers - the Water Department, Energy Resources and LB Recycles - offer internships and other educational learning experiences. Check out these links to find out more!

- [lbwater.org/employment/internships](http://lbwater.org/employment/internships)
- [longbeach.gov/energyresources/about-us/employment](http://longbeach.gov/energyresources/about-us/employment)
- [longbeach.gov/jobs](http://longbeach.gov/jobs)



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