

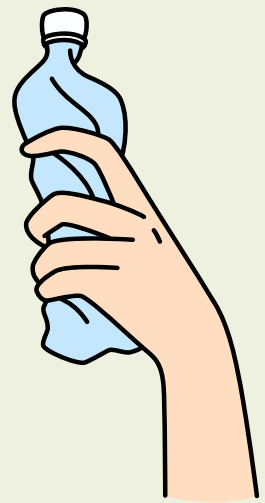
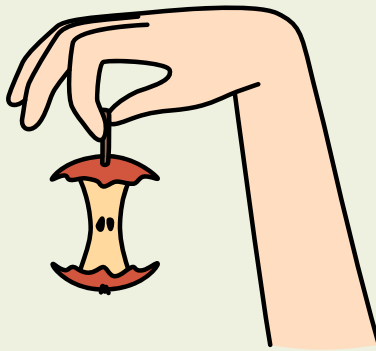
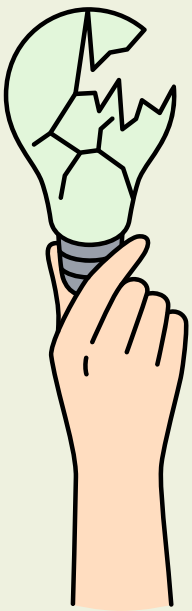
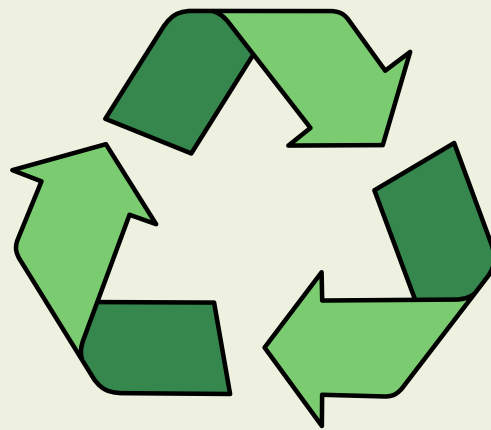


DNHS-SanDiego-CA



RECYCLING

GUIDEBOOK



DISCLAIMER

Each city and state may have different rules and regulations for recycling. Check with your local recycling center or municipality for a list of acceptable items. This guidebook is by no means completely authoritative or scientifically factual. Our intent is simply to help guide future iGEM teams in creating their projects based on our personal experiences. If there are mistakes that arise after distribution, we will make corrections as and when reported

ACKNOWLEDGEMENTS

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IF YOU HAVE ANY QUESTIONS OR COMMENTS,
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01 WHAT IS RECYCLING?

In the US, recycling involves reprocessing materials that might normally be thrown away into new products (US EPA). This process is very important because it reduces the amount of waste in the environment.

The recycling process can differ in every area, but all recycling has three main steps: **collection, processing, and remanufacturing** (US EPA). First, materials are collected and transported to facilities that can process them. They are then separated into various categories, and cleaned of contaminants. Each material (paper, glass, plastic, etc.) is given a different treatment to complete this process. After materials are processed, they are remanufactured into products at a recycling plant or other facilities.



Recycling is beneficial in many ways, not just to the environment. Environmental benefits are vast, including the preservation of nonrenewable resources, such as trees, for paper. Additionally recycling and remanufacturing materials uses significantly less energy than manufacturing raw materials. As a whole, recycling helps use less natural resources. In addition to this, recycling is beneficial to the economy, as recycling creates jobs. California is expected to create 45,000 new recycling jobs after meeting a recycling goal (U.S. Department of Health and Human Services).



02 HOW TO RECYCLE

US Waste Management recommends that you follow these three rules when recycling:

1. **Recycle bottles, cans, paper, and cardboard**
2. **Clean any liquid and food residue off all recyclables**
3. **Don't include loose plastic bags or bagged recyclables**

While it is especially important to remove food residue, recyclables don't have to be spotless. Simply make sure that the residue will not contaminate other items in the bin, like paper, as this would make the paper nonrecyclable.

A common misconception is that all plastics are recyclable. Some plastics require special handling, such as hoses or swing sets. Plastic bags also require special processing by your local retailers. Make sure to check local recycling guides before recycling something, if unsure about whether it is recyclable or not.

Additionally, rules around glass recycling vary by region, so checking local rules before putting glass into your curbside bin is important. For example, in San Diego, no drinking glasses, Pyrex, or window glasses are recyclable. These rules change depending on jurisdiction, which is why it is important for everyone to check before recycling.

03 WHAT ARE RECYCLING CODES?

Recycling codes are identification codes that tell you what type of plastic a material is made of. You can find the small triangular symbols on the bottom of most plastic packaging. The numbers located in the triangle range from 1 to 7. The higher the number, the harder it is to recycle the material. Usually, plastics with codes, 1 and 2 are most commonly recycled while 3-7 are generally less likely to be recyclable.

Disclaimer: it is very important to check local recycling guides to help understand which materials can be recycled in your local area.



03 WHAT ARE RECYCLING CODES?

Here's what each recycling code represents:



1. Polyethylene Terephthalate (PET or PETE)

Ex: Cosmetic containers, plastic bottles, mouthwash bottles



2. High-Density Polyethylene (HDPE)

Ex: Detergent/shampoo bottles, grocery bags, milk bottles



3. Polyvinyl Chloride (PVC or V)

Ex: Garden hose, window frames, blister packs



4. Low-Density Polyethylene (LDPE)

Ex: Squeezable bottles, cling film, bread bags



5. Polypropylene (PP)

Ex: Yogurt containers, medicine bottles, caps, straws



6. Polystyrene (PS)

Ex: Disposable plates and cups. Meat trays, egg cartons



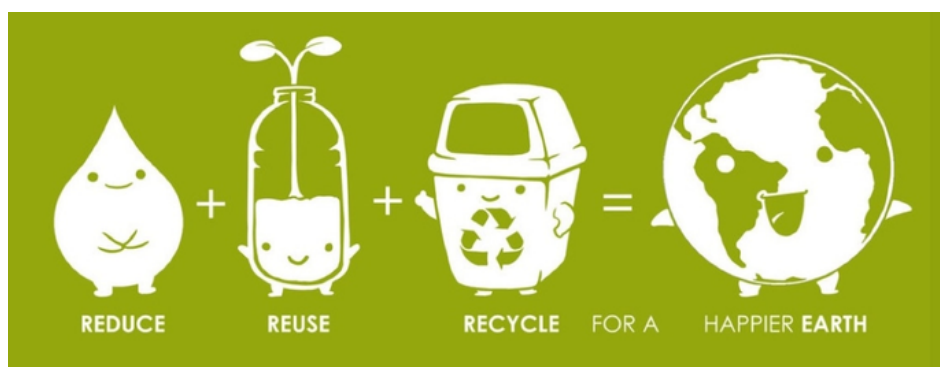
7. Other plastics

Ex: Sunglasses, nylon bulletproof material

04 HOW CAN YOU REDUCE PLASTIC USE?

Remember: within the “three R’s”, **Reduce and Reuse** come before Recycle. If possible, reduce your consumption of plastic products, and products packaged with plastics. If you must use such products, try to find creative ways to reuse the plastic packaging. Finally, if you cannot find any other ways to reduce your use or reuse a product, ensure that you recycle your waste correctly.

1. **Use reusable bags** made of sustainable materials. Avoid disposable bags which must be specially recycled at participating retailers
2. **Minimize the use of disposable plastic** water bottles, containers, and straws and opt for reusable options like metal or glass containers. Similarly, consider eco-friendly alternatives such as paper straws instead of plastic ones.
3. **Reduce takeout packaging.** While ordering takeout, request minimal packaging and use your own metal utensils instead of asking for plastic utensils.
4. **Support local vendors** and buy plastic-free fruits and vegetables at the farmer’s market.



Reduce: Tackle the root of the problem by consuming less products.

Reuse: Choose reusable alternatives over disposable products.

Recycle: Follow your local recycling rules and recycle all possible products.

Three rules for recycling:

- Recycle bottles, cans, paper, and cardboard
- Clean and dry - no food/liquid residue
- No bagged recyclables



Clean, dry, and loose (no bags):

- bottles/jugs/tubs (plastic, metal, glass)
- cans
- paper
- cardboard
- EMPTY aerosol cans
- large styrofoam blocks



NO:

- plastic food wrappers
- plastic bags
- tissues/napkins
- windows/ceramic/pyrex
- food waste/landscaping trimmings
- hazardous materials



Visit WasteFreeSD.com for more information

DNHS iGEM Recycling Guide - San Diego County



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SOURCES

The U.S. Recycling System | US EPA. (n.d.).

<https://www.epa.gov/circulareconomy/us-recycling-system>

U.S. Department of Health and Human Services. (n.d.).

Environmental programs benefits of recycling. National Institutes of Health. <https://nems.nih.gov/environmental-programs/pages/benefits-of-recycling.aspx>

What is Recycling & What to Recycle. WM. (n.d.).

<https://www.wm.com/us/en/recycle-right/recycling-101>

Why it's important to recycle right. Recycle Right. (n.d.).

<https://www.sandiegocounty.gov/content/sdc/dpw/recycling/RecycleRight.html>