

# DIY CLEANER AND GREENER LIVING

## AGES

Adults

## PROGRAM DESCRIPTION

Learn to make cleaning and household products from everyday items that do less harm to our planet! To inspire patrons to make a change to eco-friendly alternatives during an in-person program, present some facts about the toxicity of regular cleaning products. You could also make this into a passive program by printing recipes for patrons to take home (see Printables). The DIY recipes could also be recorded or run as an interactive Zoom presentation. Suggested runtime: 45 min.



Image source: Shutterstock

## MATERIALS AND PREPARATION

See Printables for recipes.

## UNIQUE SPACE AND/OR PERSONNEL NEEDS

Solo-librarian friendly.

### TIP:

You could also make this into a science-focused program by discussing which chemicals harm ocean creatures and how. Examples of harmful ingredients include phosphates, phthalates, and volatile organic compounds (VOCs) (see Printables for a deep dive into the scientific research compiled by Kara Rumble).

### TIP:

Provide blank sticker labels for patrons to design!

## RESOURCES

### Web

“WaterSense: Our Water” from EPA: <https://bit.ly/3wv2Dxw>

“Greener Living” from EPA: <https://bit.ly/3yKpRkX>

“Homemade Natural Cleaning Products” from *The Maids*:  
<https://bit.ly/34sz7ME>

“DIY Cleaning Recipes with Castile Soap” from *The Eco Hub*:  
<https://bit.ly/3hWi3a3>

15 homemade cleaners by *Oprah Daily*: <https://bit.ly/3bYtrhD>

Homemade cleaners with pantry ingredients from *Better Homes and Gardens*: <https://bit.ly/3wv2SbU>

DIY dryer sheets from *The Spruce*: <https://bit.ly/3ur2Nod>

### Books

#### Non-fiction

*Green Clean: Natural Cleaning Solutions for Every Room of your Home* (2019) by Jill Potvin Schoff

*Natural Home Cleaning: Over 100 Ways to Clean Your Home Naturally* (2019) by Fern Green

*The Natural Cleaning Handbook: Homemade Hand Sanitizers, Disinfectants, Air Purifiers, and More* (2020) by Natalie Wise

*Green Housekeeping: Recipes and Solutions for a Cleaner, More Sustainable Home* (2019) by Christina Strutt

### Printables

DIY Cleaning Product Recipes

A Deep Dive into Harmful Cleaning Products

# DIY CLEANING PRODUCT RECIPES

## All-Purpose Cleaner

- 2 cups water
- ½ cup white vinegar
- A few drops of essential oil
- ½ teaspoon castile soap

Mix all ingredients together in a spray bottle.

## Glass Cleaner

- 1 cup hot water
- 1 cup isopropyl alcohol
- 4 tablespoons of cornstarch

Mix water and alcohol together and then whisk in the cornstarch. Transfer to a spray bottle.

## Carpet Freshener

- 1 cup baking soda
- ½ cup cornstarch
- 5–20 drops essential oil

Mix together and add to a jar with a shaker top. Sprinkle on carpet 30 minutes before vacuuming.

## Sink and Tile Scrub

- 1 cup baking soda
- ¼ cup castile soap
- 5 drops essential oil

Mix all ingredients into a paste and transfer to a jar.

## Dryer Sheets

- White vinegar
- Essential oils
- Pieces of old cotton cloth
- Wide-mouth glass containers with tight-sealing lids

Mix together ½ cup white vinegar and 6–10 drops of essential oil. Add cloth, and seal the jar. When ready to use, remove one cloth, wring out excess liquid, and add it to the dryer with your clothes. Place the cloth back in the jar once used, topping up the scented vinegar as needed.

# A DEEP DIVE INTO HARMFUL CLEANING PRODUCTS

by Kara Rumble of Sequoyah Regional Library System, Canton, GA

## Triclosan

Turning the Tide. (2015). *Rodale's Organic Life*, 1(3), 28–29.

- Found in most cleaning products labelled as “antibacterial”
- Contributes to antibiotic/antimicrobial resistance and modifies the microbiome

## 1,4-Dioxane

Zhao, L., Hou, H., Fujii, A., Hosomi, M., & Li, F. (2014). Degradation of 1,4-dioxane in water with heat- and Fe-activated persulfate oxidation. *Environmental Science & Pollution Research*, 21(12), 7457.

- Found in most cleaning products labelled as “antibacterial”
- Though it does not bioaccumulate, it does not readily biodegrade in water or soil.

## Nonylphenol Ethoxylates (NPEs)

Hu, X., Sun, Z., Wang, J., An, M., & Duan, S. (2014). Sublethal Toxic Effects of Nonylphenol Ethoxylate and Nonylphenol to *Moina macrocopa*. *Bulletin of Environmental Contamination & Toxicology*, 93(2), 204.

- Found as a surfactant in cleaning products (used to loosen the dirt and grease)
- Damages fishes' gills and destroys the protective mucus layer on their skins.

## Phosphates

Alyamani, E.J., Booq, R.Y., Bahkali, A.H., & Alharbi, S.A. (2020). Biological Removal of Nitrates from Groundwater Resources in Saudi Arabia. *Journal of Pure & Applied Microbiology*, 14(3), 2203.

- Found as a detergent in floor cleaners and other household cleaning products
- Wastewater treatment only filters ~30% of phosphates; the rest enters waterways.

## Phthalates

Vannucchi, F., Francini, A., Pierattini, E. C., Raffaelli, A., & Sebastiani, L. (2019). *Populus alba* dioctyl phthalate uptake from contaminated water. *Environmental Science & Pollution Research*, 26(25), 25564.

- Most common in air fresheners, but also in cleaning and laundry products
- Most fragrances contain phthalates, which do not have to be disclosed in lists of ingredients because fragrances are protected by trade secret law.
- Toxic to aquatic organisms (bacteria, algae, crustaceans, insects, and fish).

## Quaternary Ammonium Compounds Cleaning Products (QUATs or QACs)

Wanja, D.W., Mbuthia, P.G., Waruiru, R.M., Bebor, L.C., Ngowi, H.A., & Nyaga, P.N. (2020). Antibiotic and Disinfectant Susceptibility Patterns of Bacteria Isolated from Farmed Fish in Kirinyaga County, Kenya. *International Journal of Microbiology*, 1.

- Used as disinfectants, surfactants, and fabric softeners.
- Toxic to many aquatic organisms, and does not degrade.

## Volatile Organic Compounds Cleaning Products (VOCs)

Afshar, A., Feizi, F., Moghadam, A., & Saadatpour, M. (2017). Enhanced CE-QUAL-W2 model to predict the fate and transport of volatile organic compounds in water body: Gheshlagh reservoir as case study. *Environmental Earth Sciences*, 76(23), 1.

- Found in many cleaning products of all kinds
- Cause excess algae growth, resulting in loss of daylight for aquatic ecosystems, and depletion of oxygen levels, which kills fish and other animals. They can poison drinking water or lakes for swimming.