

Simple Solutions

Ages: 5 and up (w/adult support)

Activity Summary

Making your own cleaning solutions are a great way to explore chemistry while being eco-friendly.

Learning Objectives

- Participants will combine ingredients to make a solution with common household ingredients.
- Participants will explore properties of liquids by pouring, mixing, and spraying.
- Participants will practice environmentally friendly methods.

Materials & Supplies

- Reusable spray bottle
- Water (boil ahead of time)
- 70% Isopropyl Alcohol (rubbing alcohol)
- Essential oil (tea tree, thyme, cinnamon, or other)
- Lemon or lime juice
- White vinegar
- Measuring cup



Ingredients for eco-friendly cleaning spray.

Setup

Find a space where any potential spills are easy to wipe up, such as on a countertop near a sink, and have a towel nearby. Boil 2-3 cups of water ahead of time in a tea kettle or small saucepan with lid.

Key Words

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| Chemical | Solution | Liquid |
| Eco-friendly | Disinfect | Sanitize |

Safety Precautions

Use safe handling with chemicals and read all labels prior to using. Do not ingest or get in eyes. Use a wafting technique to smell any odors. Wash hands thoroughly when finished. Store chemicals in a safe place, out of reach of young children.



Wafting involves pushing the odor of a substance to your nose.

Directions

1. Measure and pour 1 cup of Isopropyl alcohol into a reusable bottle.
2. Measure and pour 1 cup of hot water into the same bottle.
3. Add 25-50 drops of essential oil into bottle (may be substituted with lemon or lime juice).
4. Measure and pour 1 cup white vinegar into the same bottle.
5. Close the lid and shake well.
6. Spray a small area of a surface and let it set for a few minutes as a test to ensure no damage is made to the surface's appearance.
7. Use a clean rag to wipe.

Going Further

As you measure and add each ingredient ask your child to describe what they see, smell by wafting, and what they think might happen when they add it to the bottle. Making observations throughout the process builds their scientific habits of mind and may invite further questions to explore.



Adaptations

Many essential oils have antiviral and antibacterial properties but if you do not have any on hand you can substitute it with lemon or lime juice.

If using this solution on a stone or finished surface, skip the vinegar altogether. Vinegar's acidic properties can damage these surfaces.

Clean up

Wash all dishes and wipe up any spills. Safely store unused chemicals.

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