

2025 Science Fair Log Book

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Important Dates

Oct 7 School Registration Opens

Oct 7 Project Registration Opens

Dec 13 School Registration Closes

Dec 16 Independent Registration Opens

Jan 13 Judging Registration Opens

Feb 7 Independent Entry and Project Registration Closes

Mar 21 Project must be completed online

Apr 10 Project Setup at the Olympic Oval

Nov 30, 2025

- First Science Fair meeting - YAY!

Dec 2, 2025

- Choosing project
 - Which toothpaste works best?
 - Sensodyne
 - Colgate
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 - What car wheels are the best?
 - Is there a difference between summer, all season, winter
 - Is it worth it
 - What makes feet stinky?
 - We don't want to test and smell stinky feet - HAHA
 - Something with germs spreading...
 - What dish soap works the best?
 - Which body soap works best?
 - How does mold grow?

- Is food colouring bad for you?
- How come fruits are different colours?
- What's the difference between zucchini and cucumbers

Dec 5, 2025

- begin research
 - Which toothpaste works best?
 - Use an egg
 - Will the shell of the egg be good enough? Will the egg go bad?
 - Use electric toothbrush
 - How do we keep the brushes the same so it's consistent
 - Which body soap works best?
 - Use fruit so that it's like human skin for the experiment part... Apple skin? Orange peel?
 - How do we test how it's working or not?
 - What car wheels are best?
 - Interview Josie's dad
 - Which dish soap works best?
 - Bonus - We can cook food for ourselves to eat! YAYAYAYAY

Jan 2, 2025

- Meeting to start writing the scientific process
- What material should we use as the thing that needs to be washed
 - pot/pan/plate/tin foil/petri dish
- What food should we cook that is challenging to wash off
- Soaps
 - Dawn (Makenna & Josie house)
 - Ecos (Josie's house)
 - Method (Makenna & Josie's house)
 - PalmOlive (Makenna's house)
- Cut a pack of sponges in half or smaller?

Jan 6, 2025

- ADD water to use as a baseline for what would happen if soap wasn't used at all

Jan 17, 2025

- Should we add water to use as a baseline for what would happen if soap wasn't used at all → YESSSSS!!!!
- First test run at Makenna's house
 - When we were doing the experiment everything was going good but we thought there was too much sauce in the tin so we tapped it out making the experiment unreliable
 - On top of that we scrubbed extra on a few tins because we didn't realize that doing this would make the data unreliable
 - Now we learned from that. This experiment is a FAIL because we weren't consistent about the cleaning part
- Back to the beginning
 - Rewrite scientific procedure to be more detailed and ONLY follow these steps
 - Don't use tin trays
 - What should we use instead? We will need 5 of the same things.
 - Or use 8x12 pan and make 5 different smears in the pan

Feb 4, 2025

- Look at ethics form
- Fill in registration
- WE NEED TO TAKE PICTURES!!!!

Feb 6, 2025

- Submit ethics form

- Submit project registration

Feb 7, 2025

- ADD water to use as a baseline for what would happen if soap wasn't used at all
- How much dirt is left - Qualitative describing (soak + scrub for same time for each, compare observations when done)
- Analyzing under a microscope - qualitative (describing how it looks, what you see)

Feb 24, 2025

- Talked to mr. thompson about our experiment. He said we dont' need to do so many experiments and that one experiment should be good enough to gain test results

Mar 7, 2025

- EXPERIMENT DAY
 - Make sure we take lots of pictures
 - Make sure we write down notes
 - Make sure we have all supplies
 - Need to buy more sponges
 - Need to buy something to wash the dishes in. like a big bin or a wash basin or something like that
- Ahhhhh! I hope we get this rightttttttt
- Chili plate observations - Ecos was the first chunk to come off at 1 minute, at 2 minutes all had a chunk come off. The surface water in the 'water bin' has pools of tomato sauce. They look like red flakes on the surface of the water. Ecos and PalmOlive also have a little bit of red puddles on the surface. There are tiny traces of

red puddles on the surface for Method and Dawn.

- Dish soap can significantly harm the environment by polluting waterways with chemicals like phosphates and sulfates, which can disrupt aquatic ecosystems, contribute to algal blooms, and directly harm marine life, especially when the soap isn't biodegradable; this can affect water quality for both animals and humans if not properly disposed of.
- Bad chemicals: Phosphates, sulfates, synthetic fragrance SLS, phthalates, and parabens. Palmolive and Method has sulfate
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Mar 9, 2025

- Research on harmful ingredients
- Research on consumer ratings

Environmental Impact

Dish soap can significantly harm the environment by polluting waterways with chemicals like phosphates and sulfates, which can disrupt aquatic ecosystems, contribute to algal blooms, and directly harm marine life, especially when the soap isn't biodegradable; this can affect water quality for both animals and humans if not properly disposed of.

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fragrance SLS, phthalates, and parabens.

Palmolive and method has sulfate

- 1. Phosphates and Surfactants:** These are primary components in many dishwashing liquids. Phosphates act as water softeners to enhance cleaning effectiveness, while surfactants reduce surface tension, allowing soap to spread and penetrate dirt quickly. However, once these substances wash down the drain, they do not cease their activity. In aquatic environments, phosphates can lead to eutrophication—a rapid growth of algae that depletes oxygen in water bodies, endangering fish and plant life. Surfactants, on the other hand, can harm aquatic creatures by damaging their cellular membranes, leading to leakage and potentially death.
- 2. Environmental Impact:** When dish soaps are washed away, their chemicals are transported through water treatment systems and eventually released into natural water bodies. The environmental footprint of these chemicals is significant. Phosphates, despite being banned in several regions, are still found in some cleaning products and continue to contribute to algae blooms that severely affect water quality and aquatic life. Surfactants may not be fully removed during water treatment and can decrease the surface tension of water bodies, negatively affecting the organisms dependent on the surface tension for their survival, such as water striders and some fish

species.

3. Effects on Marine Life:

- **Coral Reefs:** These vibrant ecosystems are particularly sensitive to changes in water quality. Chemicals from dish soaps can increase algae growth on coral reefs, blocking the sunlight needed by the corals to survive and function properly. Additionally, these substances can be toxic to the symbiotic algae called zooxanthellae, which live inside the coral tissues and are crucial for coral health and growth.
- **Aquatic Organisms:** Exposure to the chemical components of dish soap can be lethal for many forms of marine life. Fish, in particular, are susceptible to the toxic effects of surfactants, which can damage their gills and affect their ability to absorb oxygen, leading to suffocation. Other smaller organisms, such as plankton, are also at risk, which disrupts the food chain.
- **Reproductive Systems:** The reproductive systems of aquatic animals can be severely affected by exposure to chemicals found in dish soaps. These chemicals can mimic hormones and disrupt endocrine functions, leading to decreased fertility, abnormal growth, and developmental issues in offspring. Such disruptions can have long-term impacts on population stability and biodiversity.

Dish soaps can negatively affect environments like polluting waterways with their harmful chemicals which can end up affecting coral reefs (which are sensitive to change), contribute to algae blooms, harm wildlife; which can lead to disruptions in the food chains, especially if the soap isn't biodegradable; it can affect water quality for both humans and animals.

Chemicals behind dish soap

.The main components include surfactants, enzymes, fragrances, dyes, and preservatives.

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Dishwashing liquids are formulated with a combination of ingredients that work together to remove food residues, grease, and dirt from your dishes. The main components include surfactants, enzymes, fragrances, dyes, and preservatives. Each ingredient plays a crucial role in the overall cleaning process and contributes to the effectiveness of the product. In addition to these primary ingredients, dishwashing liquids may also contain other additives, such as foam boosters, stabilizers, and pH adjusters, which help improve the product's performance and stability

In recent years, there has been a growing demand for eco-friendly and natural dishwashing liquids as consumers become more conscious of traditional cleaning products' environmental and health impacts. These eco-friendly dish soaps are formulated with biodegradable, plant-derived ingredients, which have a

lower environmental impact compared to synthetic chemicals

Surfactants impact how well the dish soap performed.

Surfactant Test

This test measures how well the soap reduces the surface tension of water, which helps in lifting grease and food particles.

- Method: Mix one teaspoon of dish soap with a cup of warm water. Suspend a strip of brown paper over the mixture, ensuring it just touches the surface. Measure how far up the strip the water climbs after an hour. Stronger surfactants allow the water to climb higher