

# Episode 6



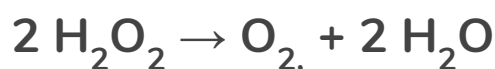
## Kitchen Chemistry

Any questions?  
Reach out  
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# Elephant's Toothpaste



**Enzymes** are specialized proteins that exist in organisms to break and make chemical bonds. Some organisms have specialized enzymes that break down toxins that would otherwise harm it. Peroxidase enzymes break down peroxides that could damage cells by converting peroxides into non-toxic compounds



Yeast cells contain an enzyme that breaks down hydrogen peroxide into oxygen gas and water, as demonstrated by the equation above. By adding hydrogen peroxide to the yeast mixture in the experiment below, gas is formed then trapped as bubbles from the dish soap -- this is what creates the overflowing foam! If you would like to learn more about yeast, check out our lesson plan on sourdough bread!

## Materials:

- Yeast
- 3% hydrogen peroxide
- Warm water
- Dish soap
- Food colouring
- spoon(s)
- Baking tray
- Small cup (for mixing in)
- Tall clear/transparent cup
- Measuring cups
- Measuring spoons

## Safety Considerations:

- Supervise youth when performing this experiment, as the hydrogen peroxide is not safe to drink

# Elephant's Toothpaste



## Procedure

- 1) Place the small cup and the tall cup in the tray to save your counters from messes and spills
- 2) Add 1 teaspoon of yeast to  $\frac{1}{4}$  cup of warm water in the small cup. Stir until the yeast is mostly incorporated -- it should be a little foamy and look a bit like chocolate milk
- 3) In the tall cup, add  $\frac{1}{4}$  cup of hydrogen peroxide, a large squirt of dish soap (about 2 teaspoons, but for this it's okay if you approximate it), and a couple drops of your choice of food coloring (add a little bit more than you think that you will need, as the colour comes out pretty light at the end)
- 4) Stir the hydrogen peroxide/soap/food coloring mixture together gently, as stirring in a tall cup can make it unstable.
- 5) Remove everything from the tray except for the tall cup with the peroxide mixture
- 6) Time for a countdown! Once you've counted down, pour the yeast mixture into the cup of the peroxide mixture. It should foam and bubble up! It is safe to play with, so feel free to play with the foam (with a spoon or your hands)

#SVatHome

Want to share your  
project or results with us?

Email or tag us  
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Have a question?

Reach us at  
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