

OCEAN ACIDIFICATION EXPERIMENT OPTION 2.

Source: <https://www.exploratorium.edu/snacks/ocean-acidification-in-cup>

PREPARATION:

Create a quantity of indicator solution by diluting 8 millilitres of an acid-base indicator such as bromothymol blue (0.04% aqueous) to 1 litre of water.

EXPERIMENT OVERVIEW:

In this experiment you will be creating a carbon dioxide-rich environment in plastic cups and watching how this affects an acid-base indicator solution. To do this you will need to add your indicator solution to a plastic cup. You will then add a combination of vinegar and bicarbonate soda to a smaller paper cup and place this cup over your indicator solution, covering both cups with a lid.

EACH PAIR/GROUP WILL NEED:

- Safety goggles
- An acid-base indicator such as bromothymol blue, diluted with water: 8 millilitres bromothymol blue (0.04% aqueous) to 1 litre of water – your teacher will prepare the solution for you
- Two clear large plastic cups
- One paper cup that you can fit easily into the bigger cups
- Masking tape
- Two pieces of white paper (A4 size)
- Marker pen
- Bicarbonate soda
- White vinegar
- Two Petri dishes to use as lids for the plastic cups
- Measuring teaspoon

WHAT TO DO:

1. Put on your safety goggles and keep them on for as long as you are continuing the experiment.
2. Pour 40-50 ml of your acid-base indicator solution into both plastic cups.
3. Add 1/2 teaspoon of bicarbonate soda to your paper cup.
4. Now place the paper cup inside one of the plastic cups containing the indicator solution, ensuring that the base of the paper cup does NOT touch the indicator solution. Tape the paper cup to the top of the plastic cup (see diagram on following page).
5. Leave the second plastic cup as it is – this will be your control.
6. Stand both plastic cups onto a sheet of white paper and hold/stand another piece of white paper behind the cups as a backdrop so that it is easier to see what is happening inside the cups.
7. Now carefully add 1 teaspoon of white vinegar to the paper cup containing the bicarbonate soda. Add it very slowly and try to ensure that you don't get any vinegar into the indicator solution. As soon as your vinegar is in the paper cup place a Petri dish over the top of each plastic cup.
8. Keep a close eye on the indicator solution in both cups.

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