How does carbon dioxide affect corals?

Corals are tiny animals, many of which have a hard skelton surrounding their soft body. This skeleton dissolves if the sea water the coral lives in becomes too acid.

**Investigate the effect of raising the concentration of carbon dioxide in water.**

You can do this experiment with universal indicator (add at the end of the experiment) or with red cabbage indicator which is safe to exhale directly into.

To make a pH indicator from red cabbage:

1. Chop the cabbage into small pieces until you have about 2 cups of chopped cabbage. Place the cabbage in a large beaker or other glass container and add boiling water to cover the cabbage. Allow at least ten minutes for the color to leach out of the cabbage. Alternatively, you can place about 2 cups of cabbage in a blender, cover it with boiling water, and blend it.
2. Filter out the plant material to obtain a red-purple-bluish coloured liquid. This liquid is at about pH 7.
3. Pour about some red cabbage indicator into 2 boiling tubes, til it I about ¼ full.

To test the effect of carbon dioxide on the pH of water you gently bubble your exhaled breath into one of the boiling tubes containing the red cabbage indicator solution. Do this using a straw. Keep gently exhaling into the tube until you see a colour change (compare it with the second tube that you did not breath into).

Draw your apparatus and make a table to record the colour of the solution at the start and end of the investigation.

Red cabbage indicator colours

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **pH** | 2 | 4 | 6 | 8 | 10 | 12 |
| **Colour** | Red | Purple | Violet | Blue | Blue-Green | Greenish Yellow |

ACID ALKALI

What effect has the carbon dioxide had on the pH of the solution?

The level of carbon dioxide in the atmosphere is rising and this is increasing the level of carbon dioxide in the oceans.

How might rising carbon dioxide levels in the oceans affect coral?

Do you think this will affect any other species in the ocean? Explain your answer.

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