

Meascom School Science Series

Teacher Instruction Sheet – Environmental pH Testing

This activity introduces students to the concept of pH and teaches proper calibration and use of the Meascom School Science pH Tester. Students will measure the acidity or alkalinity of common environmental water samples.

Learning Objectives

- Understand the pH scale (acidic, neutral, alkaline).
- Learn why scientific instruments must be calibrated.
- Measure pH in environmental samples.
- Record and interpret scientific measurements.



Equipment Required

- Meascom School Science pH Tester
- URL to download [worksheets and purchase equipment](#)
- pH 7.00 buffer solution
- pH 4.01 buffer solution
- KCl electrode storage solution
- Distilled water
- Small sample containers
- Environmental water samples (rainwater etc.)
- Household substance samples (lemon juice, baking powder, soap solution)

Teacher Preparation

Prepare small sample containers with environmental water samples and household substance samples. Provide each group with distilled water for rinsing the probe and ensure buffer solutions are clearly labelled.

Lesson Structure

1. Introduce the pH scale and discuss examples of acids and bases.

2. Demonstrate calibration using pH 7.00 and pH 4.01 buffers.
3. Students measure environmental samples and record results.
4. Discuss why pH varies in natural environments.

Expected Results

Substance	Expected pH Range
Lemon juice	2.0 – 2.6
Rainwater	5.5 – 6.5
Baking Powder	7.5 – 8.5
Soap Solution	8.0 – 9.0

Probe Care

After the experiment, rinse the probe with distilled water and store the probe with a few drops of KCl storage solution in the protective cap. This keeps the electrode hydrated and ensures accurate measurements.

Safety Note to Advise Students

- Do not drink any samples
- Wash hands after experiment
- Strong chemicals (e.g., drain cleaner) should only be handled by teachers