NAME

CLASS / DATE

RED CABBAGE PH INDICATOR LAB

01 QUESTION

How does the sample change the color of red-cabbage indicator under the same test conditions?

02 PREDICT BEFORE YOU MEASURE

RED-CABBAGE INDICATOR MAY…

○ show different color groups ○ stay close to purple ○ show a pattern I cannot predict yet

Predict a pattern, not an exact pH number. Record what each approved sample actually does.

03 VARIABLES

I CHANGE (INDEPENDENT)	I MEASURE (DEPENDENT)

I KEEP THE SAME (CONTROLLED) · CHANGED: LIQUID TESTED. OBSERVED: COLOR AND APPROXIMATE CATEGORY. KEEP INDICATOR AMOUNT, SAMPLE AMOUNT, CUP AND LIGHTING SIMILAR.

04 MATERIALS

- ☐ Cooled cabbage indicator
- ☐ Purple reference cup
- ☐ Labeled clear cups
- ☐ Separate clean droppers
- ☐ Teacher-approved small samples
- ☐ Goggles and white paper

05 PROCEDURE

SAFETY An adult should prepare the cabbage extract with hot water and let it cool before students handle it. Wear goggles and do not taste any test sample. Use only the listed small food-grade samples: lemon juice, vinegar, plain water and baking-soda solution. Keep samples in separate labeled cups and leave household cleaners out of the activity.

1 **PREPARE SAFELY** Use only cooled, adult-prepared indicator and approved sample cups. Wear goggles; do not taste. ☐

2 **SET A REFERENCE** Place 10 mL of purple indicator in a reference cup on white paper under the same light as every sample. ☐

3 **TEST SEPARATELY** Add 10 mL indicator and 2 mL of one approved liquid to each labeled cup, using a clean separate dropper. ☐

4 **OBSERVE** Record each resulting color promptly. Keep every cup and dropper separate; never combine samples. ☐

5 **CLASSIFY AND SKETCH** Compare with purple; classify approximately as acidic, near neutral or basic. Sketch the reference and sample colors. ☐

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DATA AND EXPLANATION

06 RECORD YOUR OBSERVATIONS

SAMPLE	OBSERVED COLOR	SHIFT FROM PURPLE REFERENCE	APPROXIMATE GROUP
Lemon juice			
Vinegar			
Plain water			
Baking-soda solution			

Use color categories only; this indicator does not provide an exact pH number.

07 SKETCH THE COLOR COMPARISON

Draw and label the purple reference and each tested cup. Shade the observed color and add a note: acidic, near neutral or basic (approximate).

08 EXPLAIN IT WITH EVIDENCE

CLAIM

EVIDENCE

REASONING

Reasoning must use: red-cabbage indicator · color · reference · approximate · anthocyanin

09 THINK FURTHER

What comparison or tool could help check your color-based category more precisely while keeping samples separate?