

5 • Reactions in Aqueous Solution

CABBAGE LAB

Let's look at a "test" we can do to classify household products.

Vinegar

1. Label each box (on the outside edge) with the name of a household product (Ex.: "Vinegar")
2. **Put on goggles.** Move around the room and carefully collect a pipette-full of each household product.
3. Add a pipette-full of cabbage juice to each sample. Observe the color and record the results in the chart above.

4. Which chemicals stayed purple?

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5. Which chemicals turned pink/red?

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6. Which chemicals turned blue/green/yellow?

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7. Classify each color group as "acids", "bases", or "neutrals".

purple: _____ blue/green/yellow: _____ pink/red: _____

8. Place 20 drops of "swimming pool acid" into a test tube. Add "drain cleaner" to it drop by drop mixing between drops. How many drops does it take to change the color back to the original purple color? ____
9. Carefully clean up your egg carton and rinse your pipettes.

10. What is the “operational definition” of an acid? of a base?

11. What is the “theoretical definition” of an acid? of a base?

Electrolytes:

12. List the household chemicals in their color groups:

Strong Electrolytes	Weak Electrolytes	Non-Electrolytes

13. What is the “operational definition” of a strong electrolyte? of a weak electrolyte? of a non-electrolyte?

14. What is the “theoretical definition” of an electrolyte?

15. Classify as many of the household products as you can as:

Strong Acids	Weak Acids	Weak Bases	Strong Bases

16. List the 8 strong acids. All others are considered weak.

17. List the 8 strong bases. All others are considered weak... (and some of these aren't all that strong!)
Use the “Solubility Rules”

18. Why do acids and bases neutralize each other?