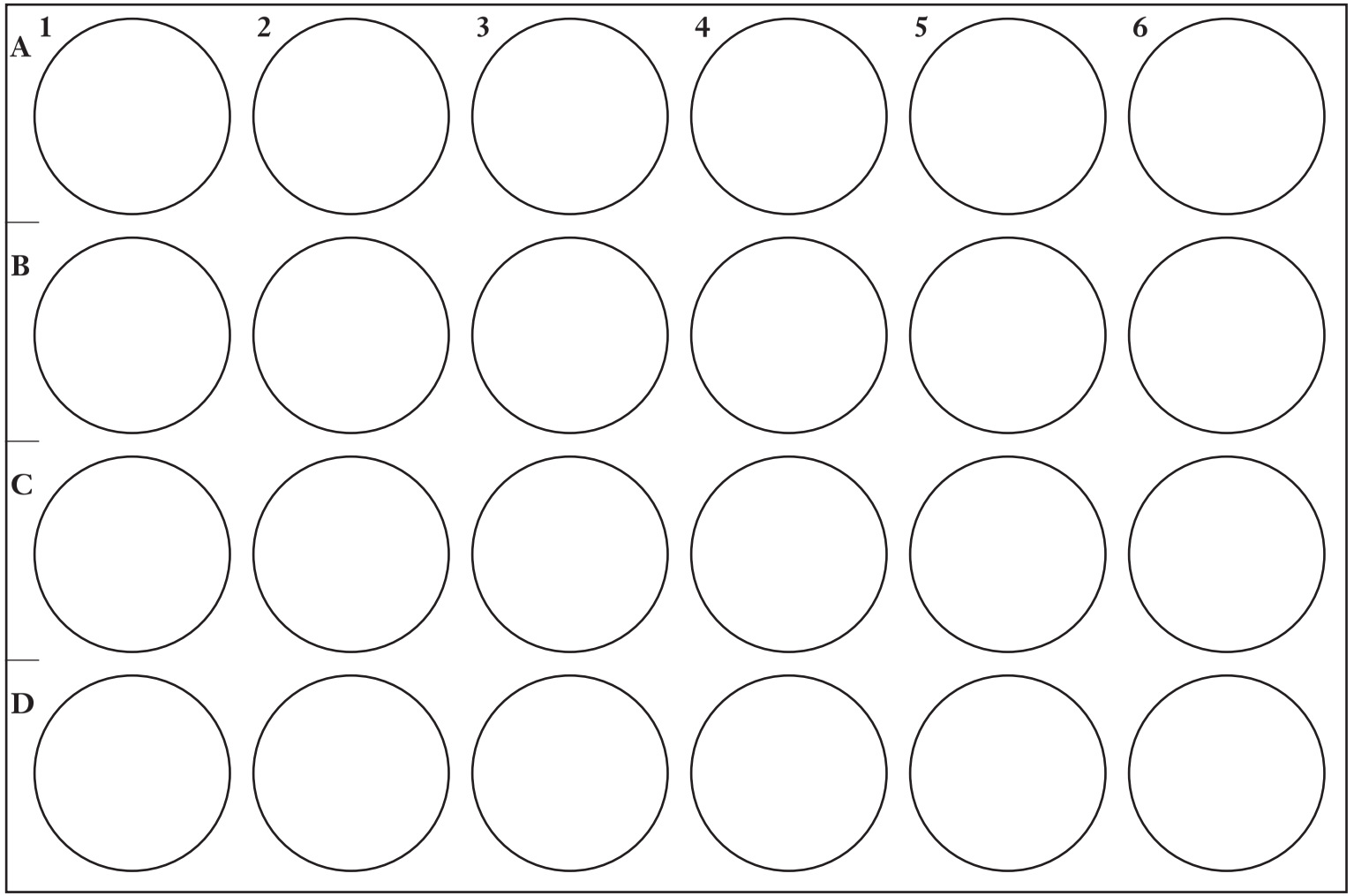
FLINN SCIENTIFIC

Name_____

Data Table 1 — Pain Relievers

OTC Drug:	Aspirin	Acetaminophen	Ibuprofen	Bufferin®	Excedrin®	Unknown # ____
Active Ingredients:						



a. Appearance

b. Solubility in H_2O

a. Color with universal indicator

b. pH

a. Reaction with 0.5 M HCl

b. pH

Reaction/color with 0.2 M $Fe(NO_3)_3$

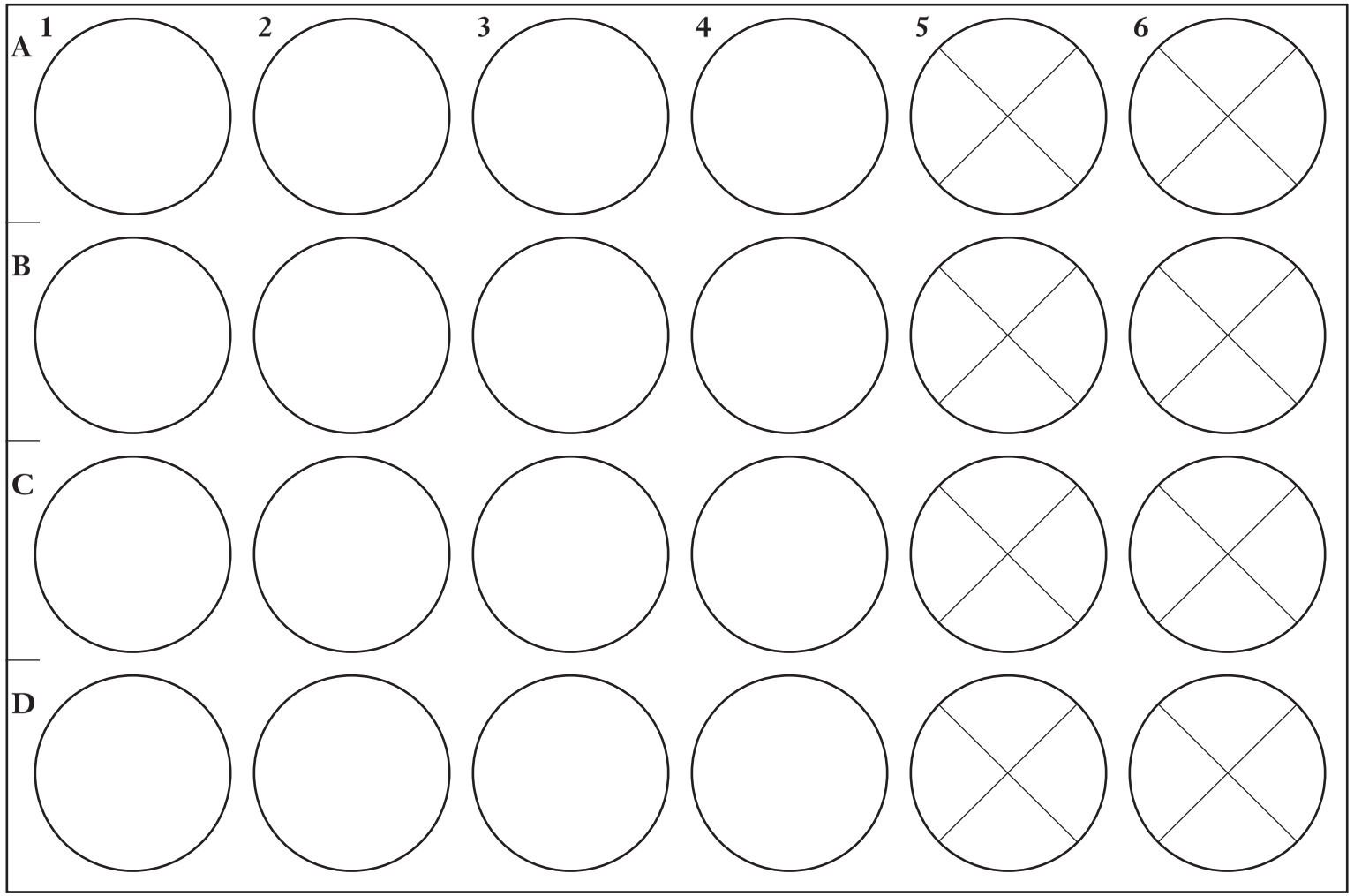
Record detailed observations inside the circles on the table. Record all colors that form. Record whether any gases evolve. If no reaction at all occurs, use the abbreviation NR.

Name_____

Data Table 2 — Antacids

OTC Drug: **Alka-Seltzer®** **Acid Controller Complete** **Generic** **Unknown # ____**

Active Ingredients:



a. Appearance

b. Solubility in H_2O

a. Color with universal indicator

b. pH

a. Reaction with 0.5 M HCl

b. pH

Reaction/color with 0.2 M $Fe(NO_3)_3$

Record detailed observations inside the circles on the table. Record all colors that form. Record whether any gases evolve. If no reaction at all occurs, use the abbreviation NR.

FLINN SCIENTIFIC

Name_____

Analysis Questions

Over-the-Counter Drugs

Part I. Questions

1. The unknown pain reliever for Part Ib was unknown # _____.
2. Based on your data, what is the identity of the unknown pain reliever? Analyze your data from Part I and list all evidence for choosing this pain reliever.
3. Which of the five pain relievers tested was the most acidic? Which was the least acidic?
4. Did the pH (acidity) of any of the pain relievers change over time? Which? Explain.
5. When the "simulated stomach acid" (0.5 M HCl) was added to the pain relievers, what happened to the pH? Did any pain relievers resist a drastic drop in pH? Explain.
6. Compare the structures of acetylsalicylic acid, acetaminophen, and ibuprofen from the background section. What similarities do you notice in terms of structure? What differences?

Part II. Questions

7. The unknown antacid for Part IIb was unknown # _____.
8. Based on your data, what is the identity of the unknown antacid? Analyze your data from Part II and list all evidence for choosing this antacid.
9. Why are most pain relievers (and antacids) fairly insoluble? *Hint*: Refer to the background section.
10. Compare the pH of the three antacids tested before adding HCl. Then compare the pH of the three antacids after adding HCl, "stomach acid". Which antacid(s) seem to be most effective? Which antacid(s) seem to be least effective? Explain.