Name _____

STUDENT HANDOUT

# Nitrogen Deposition in Rainwater

Research question: _____

_____

Hypothesis: _____

_____

_____

Height of water in rain gauge: _____

Follow the directions on your test kit to determine the amount of nitrate or ammonium in your rainwater.

| Group Number | Nitrate (ppm $N\text{-}NO_3$) | | Ammonium (ppm $N\text{-}NH_4$) | |
|---|---|---|---|---|
| | Rainwater | Control | Rainwater | Control |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| Class average | | | | |

Most chemical tests give results in the amount of nitrogen. To find the concentration of nitrate, you must multiply your results by 4.43. This is because one molecule of nitrate weighs 4.43 times as much as one atom of nitrogen. To find the concentration of ammonium, you need to multiply by 1.29 because one molecule of ammonium weighs 1.29 times as much as one atom of nitrogen.

| Nitrate Class Average | | Final Nitrate Concentration |
|---|---|---|
| Rainwater: | x 4.43 | |
| Control: | x 4.43 | |

| Ammonium Class Average | | Final Ammonium Concentration |
|---|---|---|
| Rainwater: | x 1.29 | |
| Control: | x 1.29 | |

Analysis

How does the amount of nitrate in your experimental group (the rainwater) compare the amount of nitrate in your control group?

How does the amount of nitrate in your experimental group (the rainwater) compare the amount of nitrate in your control group?

Do your results support your hypothesis or not?

Conclusion

Write a claim-evidence-reasoning statement that summarizes the results of your experiment. Use the guide below to help you with your statement.

- Your claim should answer your research question and include whether your results support or do not support your hypothesis and your model of pollution in the Chesapeake Bay.

- Your evidence should be a brief summary of the data from your experiment.

- Your reasoning should explain why your data supports your claim. Use what you know about nitrogen air pollution and your Chesapeake Bay Pollution model to explain the connection between nitrates and ammonium in rainwater, air pollution, and pollution in the Chesapeake Bay.