Cleaning Up
1. Clean up your station and return materials to their proper places.
2. Wash your hands before leaving the laboratory.

Data
Mass of the block = 5.00g
Volume of the block = 3.0mL = 3.0cm³

Exact length and width of Aluminum foil = l = 15.0cm; w = 15.0cm
Mass of the aluminum foil = 900g

Analysis Questions
1. Calculate the volume of the aluminum block from the apparent change in the volume of the water in the cylinder. \( V_f - V_i = V_b = 29.0mL - 25.0mL = 4.0mL \)
2. Since both the aluminum block and the aluminum foil are pure elemental aluminum, we would expect the ratio of the mass to the volume to be the same for both. That is:
   \[
   \frac{\text{mass of block}}{\text{volume of block}} = \frac{\text{mass of foil}}{\text{volume of foil}}
   \]
   Use this relationship to find the volume of the aluminum foil.
3. Calculate the thickness of the aluminum foil. (Hint: Think about how you would calculate the volume of a box from its measurement. Think of the piece of aluminum foil as a very thin box.) You calculated the volume of the foil in analysis #2. Using the formula \( V = l \times w \times h \)... solve for \( h \).
   \[
   h = \frac{V}{l \times w} = \frac{4.0cm³}{15.0cm \times 15.0cm} = 0.024cm = 2.4 \times 10^{-3} \text{ cm}
   \]
4. One aluminum atom has a diameter of 0.000000025 cm. How many atoms thick is the aluminum foil? (hint: Divide your result in Analysis 3 by 2.5 x 10⁻⁶). \( \frac{2.4 \times 10^{-3} \text{ cm}}{2.5 \times 10^{-6} \text{ cm}} = 96,000 \text{ atoms} \)
5. What are the possible sources for error in your experiment?
6. Look up the diameters for lithium, sodium, potassium and cesium atoms. What is the relationship between the atomic number of the element and the diameter of its atoms?

Conclusion:
Remember in the conclusion you need to have a minimum of 5 sentences.
1st - you will draw conclusions. Give a valid conclusion based on the correct interpretation of your results and explain your results reflecting back on the target.
2nd - you will evaluate procedure(s) and results including limitations, weaknesses or errors.
3rd - you will identify weaknesses and state realistic suggestions to improve the investigation.