

# Honors Accuracy and Precision Lab

## Beginning activity question:

What is accuracy and precision, how do they affect our daily lives?

## Introduction:

You and your lab group are being commissioned to determine the most accurate and precise way to throw a bean bag in a game of Cornhole. Using the materials given, your group and another group will collaborate and share data to determine the most accurate and precise way to play Cornhole.

## Materials:

- Cornhole set with five bean bags
- Meter stick

## Pre Lab Work: FOR THIS FIRST LAB THIS WILL BE DONE IN CLASS

1. Using the following rules, work with your lab group to come up with a procedure to toss the bags with either **accuracy or precision (you will be assigned which task)**.
  - a. Your minimum distance from the board has to be 4 m.
  - b. Your procedure must be no less than 3 steps and no more than 7.
  - c. You must test your procedure in no more than three attempts.
2. With your lab group, determine the data to be collected.
3. Create a data table to collect the necessary data, including visuals of your experiment.
4. Share your procedure and data collection methods with your partner group.

## Experimental Work:

- You will be paired with another group performing the other type of experiment. You must share a set of supplies with this group and make sure all necessary data is collected in the time allotted.
- Students should be collecting data for both types of experiments, including visuals.

**Post Lab Work:** With the other group, analyze the data and work on the post lab questions. Please write the question and answer in complete sentences.

1. What is the difference between accuracy and precision, use examples from this lab?
2. Explain how your accuracy could be improved in this experiment?
3. Explain how your precision could be improved in this experiment?
4. How does this activity model what has been discussed in class? Be specific, do not just state that it shows accuracy and precision.
5. Where was your error in this lab, what caused your data to not be accurate/precise? Give at least one example for each type of experiment.