Activity 1:
The Bull's Eye Ball Toss

Equipment Required	Part Number
Bull's eye (2)	part of ME-9849
Plastic balls	part of ME-9849
Carbon paper	part of ME-9849
Tape	

Procedure

1. Lay the sheets in this order: Bull's Eye/ Carbon Paper/Bull's Eye. Tape the top edges together so that all three remain attached. Place the sheets on the floor.
2. Decide upon a technique to drop the ball from a 2 meter height so that the ball strikes the center of the target. No other equipment may be used.
3. Drop the ball. Make sure a lab partner catches the ball after it bounces off the target.
4. Label the mark on the bottom Bull's Eye with a number "1" and your initials to indicate your first attempt.
5. Repeat steps 2 through 4 until there are 10 attempts. Make sure the same technique is used each time.
6. Blindfold a lab partner and repeat steps 3 though 5. The other lab partners may direct the blindfolded lab partner, but only from a location approximately 2 meters away from the Bull's Eye.

Post-Lab Discussion

Ask students to make a sketch of their results of the bull's eye on a white board. The teacher should gather several examples of the following: 1.) precise but not accurate results and 2.) precise and accurate results. In addition, have a couple sample bull's eyes ready in case none of the student samples have the proper results.

The discussion should channel the students toward the correct definitions of accuracy and precision.

Questions:

1. Were your results accurate? Explain.

2. Were your results precise? Explain.

3. Can the results be precise but not accurate? Explain.

4. How is dropping balls on a target similar to making a measurement?

A. What does the center of the bull's eye represent?

B. What does the spot where the ball lands represent?

C. How does the skill AND technique of the person dropping the ball influence the accuracy and precision? Why is the skill and technique of a "measurer" important in the taking of data?