## Accuracy and Precision : They mean slightly different things!

Accuracy is how close a measured value is to the actual (true) value. Precision is how close the measured values are to each other. Examples of Precision and Accuracy:



So, if you are playing soccer and you always hit the left goal post instead of scoring, then you are not accurate, but you are precise!

How to Remember? aCcurate is Correct (a bullseye). pRecise is Repeating (hitting the same spot, but maybe not the correct spot)

## Practice Questions:

Refer to the following experiment to answer questions 1& 2

Three students have made multiple measurements of the mass of sodium chloride. Their results are summarized in the table below. The correct value for mass of sodium chloride is 35.9 g.

	Trial 1	Trial 2	Trial 3
Nicole	35.4 g	36.1 g	35.7 g
Matthew	31.8 g	34.1 g	41.5 g
Leonard	39.2 g	39.3 g	38.9 g

1. Which student's measurements have high precision but low accuracy?

a) Nicole b) Matthew c) Leonard

2. Which student's measurements are both accurate and precise?

a) Nicole b) Matthew c) Leonard

3. Three groups of students measure the mass of a product from the same chemical reaction. The groups recorded data of 7.83 g, 7.84 g and 7.82 g. The known mass of the product from that reaction is 8.60g. The group values are

a. accurate b. precise c. accurate & precise d. neither accurate nor precise

4. Jared is practicing for a golf tournament. His normal driver distance is 250 yards. He hits three balls with his driver, and they travel a distance of 190 yards, 195 yards, and 187 yards. Which of the following is true?

a. His drives are accurate but not precise.

b. His drives are precise but not accurate.

c. His drives are both accurate and precise.

d. His drives are neither accurate nor precise.

5. Look at each targets and decide weather the "hits" are accurate, precise, both or neither

Accurate?: Yes / No	Accurate?: Yes / No	Accurate?: Yes / No
Precise?: Yes / No	Precise?: Yes / No	Precise?: Yes / No