

ACTIVITY NO – 2 - Accuracy and Precision

Subject	Chemistry
Class	XI
Chapter/Unit	Basic Concept Of Chemistry
Topic	Accuracy and Precision
Time	10 minutes
Nature of Activity	Pair work

What will I learn (Learning Outcome)

To experimentally understand difference between Accuracy and Precision

Skills: Applying, Analyzing and Creating.

What I have to do?

To experimentally distinguish between Accuracy and Precision with the help of Dart Board model

What do I require?

- Dart Board

What do I need to know?

- **Accuracy** refers to how close a measurement is to the true or accepted value. Precision refers to how close measurements of the same item are to each other.
- **Precision** is independent of accuracy. That means it is possible to be very precise but not very accurate, and it is also possible to be accurate without being precise.

➤ Teacher's Activity

Teacher will

1. Divide the class into pairs (roll number wise) and distribute Darts to all the pairs.
2. Give instructions, to recall Accuracy and Precision
3. instruct students to assume that three darts are thrown at the dartboard, with the bulls-eye representing the true, or accepted, value of what is being measured. A dart that hits the bulls-eye is highly accurate, whereas a dart that lands far away from the bulls-eye displays poor accuracy
4. Ensure that each participant of the pair performs the activity on his/her own

How will I proceed?

➤ Student's Activity

1. Each Student attempt 3 shot of Dart and categorize with the following possibilities:
 - The darts have landed far from each other and far from the bulls-eye. This grouping demonstrates measurements that are neither accurate, nor precise.
 - The darts are close to one another, but far from the bulls-eye. This grouping demonstrates measurements that are precise, but not accurate.
 - The darts are not grouped very near to each other, but are generally centered around the bulls-eye. This demonstrates poor precision, but fairly high accuracy.
 - The darts are grouped together and have hit the bulls-eye. This demonstrates high precision and high accuracy.
2. Now different group show different data.

What have I observed?

Obsevation Table:-

Tick the correct option

S. No.	Levels	Random Error	Systematic Error
1	Low Accuracy, Low Precision		
2	Low Accuracy, High Precision		
3	High Accuracy, Low Precision		
4	High Accuracy, High Precision		

What have I learnt?

- How Accuracy and Precision are related.
- Difference between accuracy and precision
- Lab data in terms of accuracy and precision.

What am I curious to learn?

- What is Accuracy Formula?
- What is the use of these terms?
- Is there any new form to explain for the same?

Let me evaluate myself

1. Difference between accuracy and precision

2. What is the significance of accuracy and precision

3. Which is more important accuracy or precision?

4. Write your own scenario illustrating the difference between accuracy and precision. Swap your scenario with a classmate. Identify your classmate's scenario measurements as accurate or inaccurate and precise or imprecise.

5. How to calculate Accuracy of an instrument?
