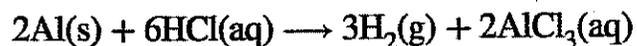


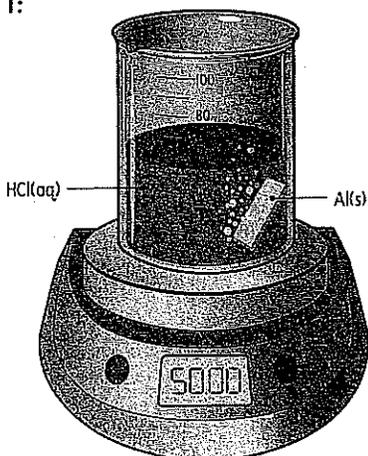
Open and Closed Systems*Use with textbook pages 125-126.*

Consider the reaction of solid aluminum and aqueous hydrochloric acid solution:



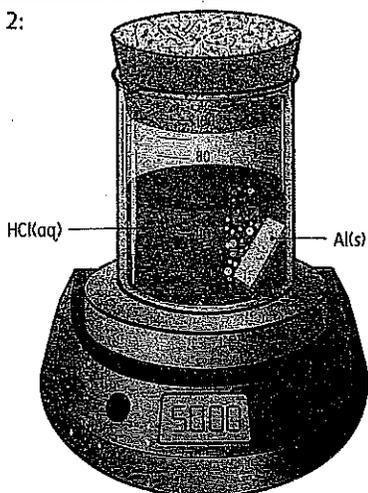
Two trials were conducted using two different experimental setups as shown below. The total mass was monitored for 5 minutes, and the following data were obtained.

Trial 1:



Time (min)	Total mass of flask and contents (g)
0	50.00
1	48.50
2	47.50
3	46.95
4	46.60
5	46.41

Trial 2:



Time (min)	Total mass of flask and contents (g)
0	50.00
1	50.00
2	50.00
3	50.00
4	50.00
5	50.00

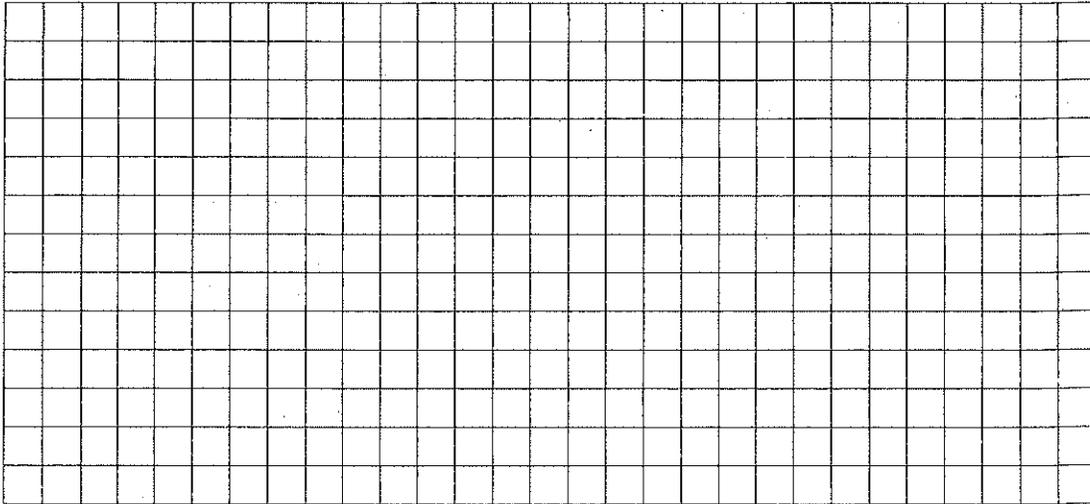
1. a) Is the setup of Trial 1 a closed or open system? Explain your answer.

b) Is the setup of Trial 2 a closed or open system? Explain your answer.

2. Use the tables provided for each experiment and draw line graphs to represent the data.

a) What variable would go on the *x*-axis? What variable would go on the *y*-axis?

b) Graph the data. Make sure to use proper labels to identify the results from Trials 1 and 2.



3. The law of conservation of mass applies to all chemical reactions. Analyze the graphs you drew in question 2b).

a) What do you notice about the mass over time in Trials 1 and 2?

b) Explain how they both demonstrate the law of conservation of mass.

4. Use a Venn diagram to compare and contrast open and closed systems.

