Name: Section: Number:
Date: Teacher: Period:

Makeup Lab #6: Coffee Filter Air Resistance

1. Hold a coffee filter, with the flat bottom facing the ground, from a known height, of at least 1 m. Use a spot on the wall or cabinet, and mark with tape to be consistent.
2. With a partner, synchronize the release of the object and the start of the stopwatch.
3. Stop the watch the moment the coffee filter hits the floor and record the time.
4. Repeat these steps for each trial.
5. Draw a free-body diagram labeling the forces acting on the coffee filter during its fall.

Data

Height of fall in meters: _____ Mass of one filter: _____

Filter	Time (s)
Trial 1	
Trial 2	
Trial 3	
Trial 4	
Trial 5	
Average	

Free-body Diagram

1. Using your average time of fall for 1 filter, and the height, calculate the value of the filter's acceleration. [*Show all work, including equation, substitution with units and answer with units.]*

2. Calculate the net force acting on the coffee filter. [*Show all work, including equation, substitution with units and answer with units.]*

3. Calculate the force of gravity acting on the coffee filter. [*Show all work, including equation, substitution with units and answer with units.]*

4. Calculate the average drag force acting on the coffee filter. [*Show all work, including equation, substitution with units and answer with units.]*