

Peastrel, M., R. Lynch Lynch, and A.Armenti, Jr. 1980. Terminal velocity of a shuttlecock in vertical fall. *American Journal of Physics*. 48(7): 511-513.

See <https://www.semanticscholar.org/paper/Terminal-velocity-of-a-shuttlecock-in-vertical-fall-Peastrel-Lynch/ba548a02eb5bb398e7fa564da6077f9f483ce438> . Accessed 18 March 2023.

**Article Abstract:** We have performed a straightforward vertical fall experiment for a case where the effects of air resistance are important and directly measurable. Using a commonly available badminton shuttlecock, a tape measure, and a millisecond timer, the times required for the shuttlecock to fall given distances (up to almost ten meters) were accurately measured. The experiment was performed in an open stairwell. The experimental data was compared to the predictions of several models. The best fit was obtained with the model which assumes a resistive force quadratic in the instantaneous speed of the falling object. This model was fitted to the experimental data enabling us to predict the terminal velocity of the shuttlecock (6.80 m/sec). The results indicate that, starting from rest, the vertically falling shuttlecock achieves 99% of its terminal velocity in 1.84 sec, after falling 9.2 m. The relative ease in collecting the data, as well as the excellent agreement with theory, make this an ideal experiment for use in physics courses at a variety of levels.