

Answer #309



We answer the questions in the order in which they were asked.

Part 1, Q1: When the bat is struck *above* the sweet spot, the bat: (c) rotates counterclockwise about the center of percussion and swings to the left, as seen by clicking your mouse on the photograph at the left above.

Part 2, Q2: When the bat is struck *below* the sweet spot, the bat: (a) rotates clockwise about the center of percussion and swings to the left, as seen by clicking your mouse on the photograph at the center above.

Part 3, Q3: When the bat is struck *at* the sweet spot, the bat: (g) swings to the left without rotating about the center of percussion, as seen by clicking your mouse on the photograph at the right above.

Note that when you strike the bat it will have a natural tendency to swing to the left because it is being struck from right-to-left. If the bat were to be lain on a smooth horizontal surface and twirled, it would twirl about the center of percussion as the approximate fixed point. When it is struck at a point *above* the center of percussion, it will therefore tend to rotate *counterclockwise* about that point, whereas if it is struck at a point *below* the center of percussion it will tend to rotate *clockwise* about that point.



Part 2: When the bat is positioned on Dan's finger at the center of percussion, as seen in the photograph above, and released: (b) it will fall off with the thin end of the bat moving down, as seen in an mpeg video by clicking your mouse on the photograph above.

Note that the center of percussion is further from the handle of the bat than the center of mass, so when you support the bat at the center of percussion you are supporting it at a point further from the handle than the center of mass, so the bat will tend to fall off your finger with the handle end going downward, or rotating counterclockwise as you look at the video.

[Question of the Week](#)

[Outreach Index Page](#)

[Lecture-Demonstration Home Page](#)



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