

Ken Barry plays Lt. Roger Carrington in this 1969 film about comedic mishaps and manipulations. Lt. Carrington has been deceived to believe that WWII is still being fought, and, in this scene, he is fleeing from troops that he believes to be in the Nazi Army. Eva, his German girlfriend, (played by Danielle De Metz) is trying to keep him from hurting himself, but Lt. Carrington takes a dive from atop the bridge in the end of the clip.

By measuring the time required for Lt. Carrington to reach the bottom of his fall (about 5 seconds), you and your students can calculate the height of the bridge and Lt. Carrington's final velocity.

$$y = y_0 + v_0 t + \frac{1}{2} a t^2$$

$$y = 0 \text{ m} + 0 \frac{\text{m}}{\text{s}} 5\text{s} + \frac{1}{2} \left(-9.8 \frac{\text{m}}{\text{s}^2} \right) (5\text{s})^2 = -120 \text{ m}$$

This height is a reasonable estimate for the height of this bridge; the tallest bridge in the world is almost 300 meters high. However, prior to the calculation, have your students estimate the height of the bridge just based on what they see in the clip.

Now, calculate Lt. Carrington's final velocity:

$$v = v_0 + at$$

$$v = 0 \frac{\text{m}}{\text{s}} + \left(-9.8 \frac{\text{m}}{\text{s}^2} \right) (5\text{s}) = 49 \frac{\text{m}}{\text{s}}$$

Now, have your students convert this measurement to something with which they might be more familiar. In British units, this speed is equivalent to 110 miles per hour. If your class discusses terminal velocity, an additional activity would be to estimate Lt. Carrington's area and calculate his terminal velocity. The typical terminal velocity of a falling man is 120 mph.