

Notice the spacing of the lines for horizontal (X) motion are equal but as the ball rises the vertical (Y) spacing between dots becomes smaller since it is slowing down as it rises.




[^0]

The vertical ( $\mathbf{Y}$ ) velocity is marked on each dot. The vertical ( $\mathbf{V y}$ ) velocity starts out fast and slows down at a constant rate (constant acceleration), briefly stops (still has constant acceleration otherwise it would stay suspended in mid-air), then speeds up at a constant rate (constant acceleration) as the ball comes back down.


Finally we show the acceleration for projectile motion. The only force acting on the ball is $F_{\text {Earth, Ball }}$ so that is then the Net Force. Fnet $=\mathbf{m a} . \mathrm{F}_{\text {Earth, Ball }}=\mathbf{m g}$, so $\mathbf{m g}=\mathbf{m a}$ or $\mathrm{g}=\mathbf{a}$.


[^0]:    The horizontal ( $\mathbf{X}$ ) velocity is marked on each dot. Since the spacing for each dot is equal, and each dot represents the same amount of time then the velocity $(\mathrm{Vx})$ is constant.

