Consider stuff moving by advection along a line (coordinatized by $x$ for $-\infty < x < \infty$) with speed $c(x,t) = ax$ where $a$ is a constant. Assume that the stuff is conserved and that there are no creation or destruction processes. Consider starting at time $t = 0$ with a prescribed density distribution. Set up a model for this scenario consisting of a partial differential equation together with an initial condition. Find the specific solution for this initial-value problem. Give a general interpretation of the specific solution without specifying an explicit initial condition. As part of this, describe the role of the parameter $a$. Also as part of this, use the specific solution to explicitly show that the stuff is conserved. Then, choose a specific nontrivial initial condition and a nontrivial value for the parameter $a$. Give visualizations of the specific solution for those choices.