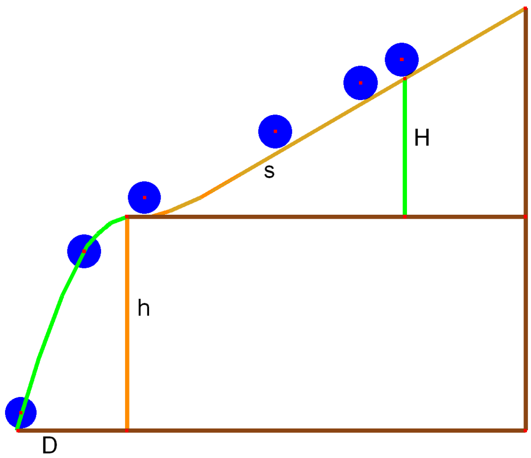
Our exhibit takes advantage of at least four Galilean laws:

1. **v ~** $\sqrt{s}$
2. **the law of inertia** along a horizontal plane[1];
3. **t ~** $\sqrt{h}$ which is the inverse of the most common formula h ~ t^2, that the distances traveled by a falling body depend on the square of the time (in modern science, we use equivalently t ~ $\sqrt{h}$ or v ~ $\sqrt{s}$ to write the law of falling bodies, but this equivalence was not a easy matter for Galileo, as it will shown in a short while);
4. **D = v · t**, because the horizontal component motion during the flight is considered an uniform motion.

$$D = \sqrt{(D_0^{\,2} s / s_0)}$$



[1] « The continuity of the motion at uniform speed in a straight line finished to become the cornerstone of Newtonian physics. That motion is now said 'inertial': Galileo admitted it only for the bodies in motion for relatively short distances close to the surface of the earth. In fact, in his Physics a body must gain velocity when approaching the center or lose it while moving away: if it falls or rises, what little as it is» (Drake 1998, pp. 54-55).