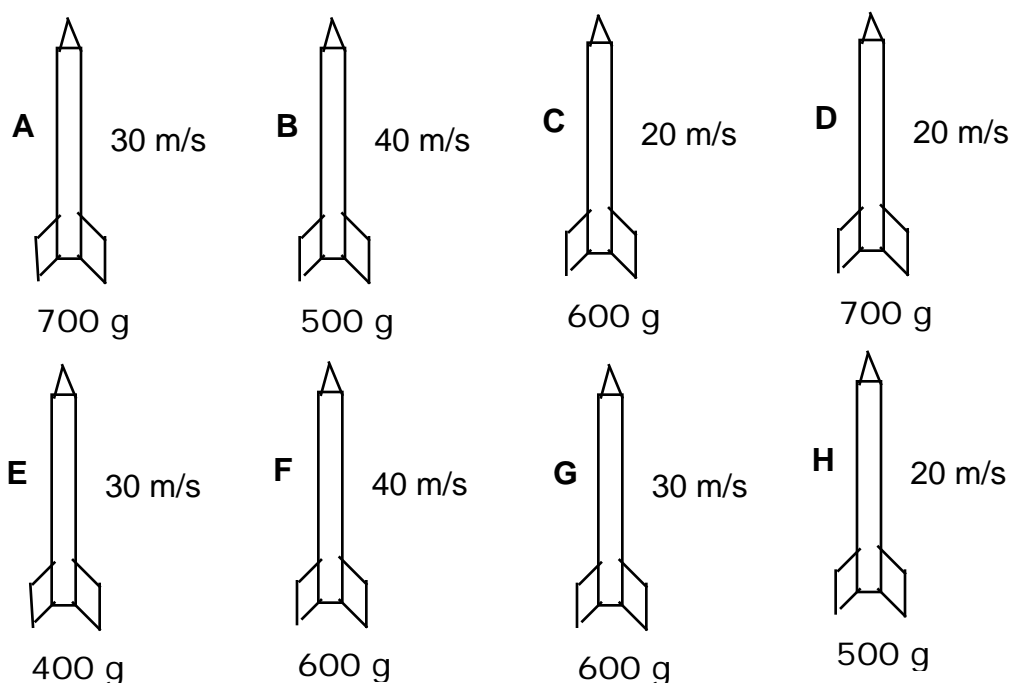


Model Rockets—Kinetic Energy ⁶³

The eight figures below depict eight model rockets that have just had their engines turned off. All of the rockets are aimed straight up, but their speeds differ. All of the rockets are the same size and shape, but they carry different loads, so their masses differ. The mass and speed for each rocket is given in each figure. (In this situation we are going to ignore any effect air resistance may have on the rockets.) At the instant when the engines are turned off, the rockets are all at the same height.

Rank these model rockets from greatest to least on the basis of the kinetic energy they have at the top of their flights.



Greatest 1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____ 7 _____ 8 _____ Least

Or, all rockets have the same kinetic energy. _____

Please carefully explain your reasoning.

How sure were you of your ranking? (circle one)

Basically Guessed

Sure

Very Sure

1 2 3 4 5 6 7 8 9 10

⁶³ T. O’Kuma, D. Maloney