

Working in groups of two or three, do the following problem.

1. **ENERGY/MOMENTUM IN DIFFERENT FRAMES**

A lump of clay of mass m is at rest in the lab frame, S . Consider the inertial frames S' , which is moving to the right at speed $\frac{4}{5}c$, and S'' , which is moving to the right at speed $\frac{12}{13}c$. Fill in the following table, showing the indicated properties of the lump of clay as measured in each of these reference frames. (The last column refers to the magnitude of the energy-momentum vector.) You may wish to draw one or more spacetime diagrams showing these quantities.

	velocity	momentum	energy	energy-momentum
S				
S'				
S''				