

MASS

DEFINITION: how much matter an object contains. Alternative definition: how many atoms are in an object.

The amount of mass that an object has depends on the types of atoms it contains, the total number of atoms and the density of those atoms. In other words, mass is the amount of matter. In everyday language, we often interchange “mass” for “weight” but these are two different things. Weight is the mass of an object combined with the forces acting upon it. This means that a person has the same mass on the surface of the Earth as they do in space or anywhere else, but not necessarily the same weight.

Units: kilograms (kg), pounds (lb), solar masses

COSMIC EXAMPLE

Mass of Sagittarius A*: 4 million solar masses or 8×10^{36} kg

The center of our Milky Way galaxy contains a giant black hole with the mass equivalent to about 4 million Suns, or about 8×10^{36} kg.

OLYMPIC EXAMPLE

Curling is a sport where athletes push a “stone” down a sheet of ice.

Stone: Between 17.24 and 19.96 kg

EVERYDAY EXAMPLE

Adult Golden Retriever mass: 36 kg (80 lbs)



ASTROLYMPICS *winter*