The measured mass distributions of fragments from 26 fractured objects of gypsum, soap, stearic paraffin, and potato show evidence of obeying scaling laws; this suggests the possibility of self-organized criticality in fragmenting. The probability of finding a fragment scales inversely to a power of the mass; the power, or scaling exponent, was found to depend on the shape of the object rather than on the material. For objects of different shapes (balls, cubes, half cubes, plates, and bars) scaling was found for fragment sizes smaller than the smallest dimension of the object undergoing fragmentation.