23 Students in a physics class are studying the energy changes that objects experience as they fall. The students plan to drop a metal sphere with a mass of 0.05 kg from a height of 20.0 m onto a bed of sand. They predicted the results shown in the table below.

Time (s)	Speed (m/s)	Distance Fallen (m)	Height (m)
0.0	0	0.0	20.0
0.5	5	1.3	18.7
1.0	10	5.0	15.0
1.5	15	11.3	8.7
2.0	20	20.0	0.0

a. Using the predicted values in the table, calculate the kinetic energy of the sphere just before it contacts the sand at 2.0 s. Show your calculations and include units in your answer.

b. Using the predicted values in the table, calculate the gravitational potential energy at 0.0 s. Show your calculations and include units in your answer.

c. Describe what happens to the gravitational potential energy **and** the kinetic energy as the sphere falls.

After the sphere is dropped, the students find that the results of the experiment are slightly different than they predicted.

d. Assuming the students performed their calculations correctly, explain one possible reason for the difference they observed.