Astronomy Ranking Task:
Energy, Work, and Power

Exercise #2

Description: Consider the following situations.

A. lifting a 4 kg child to a height of 1.5 m
B. carrying a 30 kg box up two flights of stairs (about 8 m)
C. carrying a 20 kg television up one flight of stairs (about 4 m)
D. pushing a 50 kg box that won't budge

A. Ranking instructions: Rank the amounts of gravitational potential energy each object possesses.

Ranking Order: Least 1 _____ 2 _____ 3 _____ 4 _____ Greatest

Or, the objects have no gravitational potential energy. ☐ (indicate with a check mark)

Or, the objects all have the same amount of gravitational potential energy. ☐ (indicate with a check mark)

Or, there is not enough information to determine this. ☐ (indicate with a check mark)

Carefully explain your reasoning for ranking this way:

B. Ranking instructions: Rank the amounts of work done in each of the following situations.

Ranking Order: Least 1 _____ 2 _____ 3 _____ 4 _____ Greatest

Or, no work is done in any of the situations. ☐ (indicate with a check mark)

Or, the same amounts of work are done in each situation. ☐ (indicate with a check mark)

Or, there is not enough information to determine this. ☐ (indicate with a check mark)

Carefully explain your reasoning for ranking this way:

C. Ranking instructions: Rank the amounts of kinetic energy each object possesses.

Ranking Order: Least 1 _____ 2 _____ 3 _____ 4 _____ Greatest

Or, the objects have no kinetic energy. ☐ (indicate with a check mark)

Or, the objects all have the same amount of kinetic energy. ☐ (indicate with a check mark)

Or, there is not enough information to determine this. ☐ (indicate with a check mark)

Carefully explain your reasoning for ranking this way:

D. Ranking instructions: Rank the amounts of potential energy stored in the masses of the objects.

Ranking Order: Least 1 _____ 2 _____ 3 _____ 4 _____ Greatest

Or, the objects have no potential energy due to their masses. ☐ (indicate with a check mark)

Or, the objects all have the same amount of potential energy due to their masses. ☐ (indicate with a check mark)

Or, there is not enough information to determine this. ☐ (indicate with a check mark)

Carefully explain your reasoning for ranking this way: