

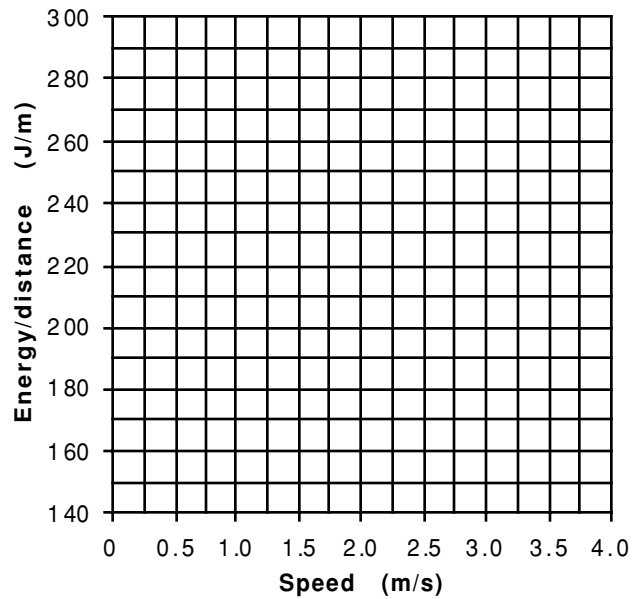
INTEGRATING HEALTH

● Energy Costs of Walking and Running

Each way of moving has a different form. When walking, people keep their legs fairly straight, and both feet are on the ground during part of a step. Each foot is on the ground for more than half the time. When running, a person's knees bend. Each foot is on the ground for less than half the length of the step, and both feet are off the ground part of the time. People usually speed up when they change their form from a walk to a run, but it is possible to walk quickly and to run slowly.

Like all body processes, the muscle movements that enable walking and running are powered by the energy in food. Researchers have measured the amount of energy used for moving at a walk and at a run. The table shows the energy used per unit distance (in J/m) for walking and running at various speeds.

Speed (m/s)	Energy used (J/m)	
	Running	Walking
1.00	300	140
1.25	290	150
1.50	275	160
1.75	265	190
2.00	260	210
2.25	260	300
2.50	265	
2.75	270	



Your Turn to Think

- On the provided graph, plot a graph of the data listed in the table.
- Interpret your graph to decide whether walking or running uses more energy at the following speeds.
 - 1 m/s _____
 - 2 m/s _____
 - 2.25 m/s _____
- At about what speed do you think the average adult naturally changes from a walk to a run? Explain your choice.